# REVISING THE CORPORATE INCOME TAX

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# PREFACE

Interest in overhauling the income tax system has risen substantially in recent years. One of the major issues in the debate over tax reform is the taxation of corporations and how it relates to the taxation of individuals. This report, prepared at the request of Congressman James R. Jones, former Chairman of the House Budget Committee, analyzes the corporate income tax and considers several alternatives that would result in a fundamental restructuring of the system. In keeping with the mandate of the Congressional Budget Office to provide objective analysis, it offers no recommendations.

This report is a companion volume to a 1983 Congressional Budget Office study, *Revising the Individual Income Tax.* It was written by Robert Lucke of CBO's Tax Analysis Division, under the direction of Rosemary D. Marcuss and Eric Toder. Many people, inside and outside CBO, reviewed drafts and provided valuable criticism and suggestions. They include Valerie Amerkhail, Joseph Cordes, Albert Davis, Don Fullerton, Harvey Galper, Cynthia Gensheimer, Jane Gravelle, Paul McDaniel, Joseph Pechman, Stephen Porter, Frederick Ribe, Joel Slemrod, Martha Smith, Emil Sunley, James Verdier, and Kenneth Wertz. The author gratefully appreciates the patience and support of all members of the Tax Analysis Division. Francis Pierce edited the manuscript. Linda Brockman and Shirley Hornbuckle typed the many drafts and Linda Brockman prepared the paper for publication.

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## SUMMARY

The corporate income tax now in effect is widely criticized as unfair and inefficient by taxpayers, economists, and politicians. Several members of the Congress have introduced bills that would drastically restructure both the corporate and individual tax systems. These include the broad-based income tax plans sponsored by Senator Bill Bradley and Congressman Richard Gephardt (H.R. 800, S. 409) and Congressman Jack Kemp and Senator Bob Kasten (H.R. 777, S. 325) as well as the cash-flow tax system proposed by Congressman Cecil Heftel (H.R. 1165). The Treasury has also proposed fundamental changes in the structure of the corporate income tax. A number of other proposals have been made for less comprehensive changes, such as full expensing of capital assets or a deduction for dividends paid.

Underlying these proposals are basic differences in opinion as to the proper role of the corporate income tax in the federal revenue system. To some, a separate tax on corporate income has no sound economic basis. The fact that corporate income is taxed once when earned by a corporation, and again when stockholders are paid dividends, is seen as double taxation. The tax is also said to inhibit capital investment, to distort business decisions, and to reduce economic growth. Others maintain that the corporate tax is an integral part of the federal tax system and a necessary adjunct to the individual income tax; without it, persons might be able to acquire substantial wealth through corporate profits that would go untaxed or be taxed only as capital gains at relatively low rates. Some argue that corporations are separate legal entities and should bear their fair share of the tax burden. Finally, there is the argument that repealing the tax would mean a significant reduction in revenues and would force a resort to some other (possibly worse) form of tax. The current structure of the corporate tax reflects these differences in opinion and is a product of past compromises between them.

## PROBLEMS WITH THE CURRENT TAX SYSTEM

The principal goal of a tax system is to raise revenue as simply, fairly, and efficiently as possible. The current corporate income tax is seriously deficient in all of these respects. The tax is not simple: the law and its regulations are complex and impose sizable compliance burdens on taxpayers. Moreover, the differential taxation of income from different sources complicates investment decisions by forcing executives to rely heavily on their tax accountants rather than on their own business judgment. The tax is seen as unfair because it imposes widely varying tax burdens on individual firms depending on their industry and their mix of capital assets. Perhaps most important, the tax reduces the efficiency of the economy by distorting business decisions. Although all taxes reduce efficiency in some way, it is desirable to minimize these costs per dollar of tax revenue as much as possible.

### Investment Distortions

The tax distorts economic decisions in three basic ways. First, it tends to shift investment from corporate to noncorporate firms. Since the corporate tax is, by definition, only levied on corporate businesses, it biases the decision against incorporation; as a result the noncorporate sector may be larger than it would otherwise be. The costs of this distortion are the loss of efficiencies from transacting business in the corporate form, such as use of national financial markets or economies of scale in production.

Second, the tax lowers the after-tax rate of return individuals can earn on their savings, and so affects the decision to consume or save. It is often argued that the relatively high combined corporate and individual tax burden on capital income reduces saving, thereby lowering the rate of capital accumulation in the economy.

Third, the corporate tax falls unevenly on different forms of corporate investment, thereby biasing investment decisions toward (or against) certain favored assets or industries. The economic cost of these uneven rates is an an allocation of capital that is less productive than it could be. This cost is in addition to any costs related to the imposition of a corporate tax as such.

## The Effects of Incentives

Some of the economic distortions attributable to the corporate tax are the result of policies to encourage investment in certain capital goods, such as plant and equipment, through the tax system. The Congress has offered general incentives for such investment in all industries through accelerated depreciation allowances and investment tax credits. The design of these incentives has resulted in a wide variation in tax rates across various asset types and firms in different industries. The incentives also interact with inflation and other tax provisions so that the tax rate on any given investment varies greatly depending on a wide variety of circumstances.

In addition to general incentives, the Congress has targeted several investment subsidies toward specific assets and activities, including research and development activities and energy production. These industry-specific subsidies have been criticized on several grounds, including their cost and inefficiency.

The net effect of these investment and savings incentives has been to create a tax system that is nominally an income tax, but in many ways resembles a consumption tax. (Under a consumption tax, the income from savings is not taxed until such time as it is consumed.) Although intended to encourage capital formation, these incentives have also encouraged abuses, such as private tax shelters and tax arbitrage. The resulting anomalies--for example, profitable firms paying no taxes or receiving refunds--have engendered still more tax rules and regulations.

## Alternatives

The future of the corporate tax structure cannot be separated from that of the individual tax system. One issue is whether to move toward a consumption base for both the individual and corporate tax or to retain the present income base. Those who favor the present system view annual income as the best representation of an individual's ability to pay taxes. Moreover, they argue that income from capital is a legitimate basis of taxation. Since most countries that employ an income tax include capital income as part of the tax base, this view is widely accepted.

On the other hand, those who favor a consumption base for taxation argue that people should be taxed on their lifetime capacity to consume, regardless of whether they choose to spend their income today or sometime in the future. Since the basic principle of consumption taxation is that the return to saving, from whatever source, should not be taxed, income earned

by corporations would be effectively exempted from taxation under a consumption tax.

Many of the economic distortions in the current corporate tax could be significantly ameliorated by moving toward a tax base that is defined by either income or consumption. A consistent approach to either would do much to reduce the distorting effect that the current rules have on the allocation of capital. Success or failure among firms and industries would then be decided by market competition and other economic factors rather than by tax considerations.

## A Comprehensive Income Tax

Broadening the base of the tax so that all corporate income, whatever its source, was taxed in full could produce significant economic gains. The difference between this and the current tax system is that all firms and industries would be subject to the same effective tax rate instead of the wide variety of rates that now prevail. Since broadening of the tax base would substantially increase corporate tax revenues, the top statutory corporate tax rate could be lowered from 46 percent to a much lower rate. For example, under the Treasury's tax reform proposal, the corporate tax rate would be reduced to 33 percent. This is the route recently traveled by the United Kingdom, which in 1984 substantially broadened the base of its income tax by sharply reducing first-year write-offs for assets and lowered the basic corporate tax rate from 52 percent to 35 percent.

Possible steps toward a broader-based U.S. corporate income tax system include: revising the system of depreciation and depletion to reflect economic depreciation; indexing depreciation, depletion, and inventory costs for inflation; eliminating tax credits for investment in general, and for specific purposes such as energy or research and experimentation; and changing the taxation of capital gains so that real gains are taxed in full.

A comprehensive corporate income tax would remove the investment biases that now exist among assets and industries. The distortion between the corporate and noncorporate sectors would remain, however, unless changes were also made to integrate the two tax systems. Full integration would require that all corporate income be subject to the same set of graduated individual tax rates that apply to income from unincorporated firms or other sources. In this way, integration would resolve the complaint about double taxation of corporate income. Since integration would remove the current double tax on corporate dividends, it would reduce federal revenues; but this could be offset by a broader definition of the tax base or

higher tax rates. The Treasury tax reform plan has proposed a 50 percent dividends-paid deduction as a partial remedy for the corporate-noncorporate distortion, thereby reducing the effective corporate tax on income used to pay dividends.

## A Corporate Cash-Flow Tax

A tax base designed according to the principles of comprehensive consumption taxation would offer many of the same advantages as the income tax base. A corporate cash-flow tax, combined with a personal consumption tax, would be neutral with respect to the corporate-noncorporate distinction, since a cash-flow tax would effectively exempt all marginal investments from taxation. In addition, the cash-flow tax base has the advantage that it would reduce the consumption-savings distortion that exists under any form of income taxation. Further, the cash-flow tax would eliminate many sources of administrative and compliance costs asscoiated with an income tax. Depending on its design, however, a consumption tax might aggravate other distortions in the tax system by requiring higher statutory tax rates to raise the same revenue.

## Transition Problems

Moving from the present tax system to a cash-flow tax could involve complex transition rules. This would be especially so if the Congress decided to limit deductions for wealth accumulated under current law, and to phase in the new rules by applying them only to newly accumulated capital. Such rules might be desirable to lessen any windfall gains and losses from an immediate shift to a completely new system, although they would reduce the potential efficiency gains from moving to a consumption-based tax system. The transition to a cash-flow tax base would be a formidable task, but not an insurmountable one. Indeed, some of the provisions in the current tax code that are taken for granted today, such as withholding on wages and salaries, were also considered impracticable when first proposed.

Whichever tax base the Congress chooses, a set of tax rules consistent with that base would diminish the opportunities for tax arbitrage and tax shelter activities. Further, a consistent set of rules would reduce the number of regulations and special rulings needed to plug the various loopholes that result from an inconsistent set of tax laws. Without fundamental changes, the system of corporate taxation will continue to allocate economic resources in inefficient ways without achieving its basic purpose of raising revenues at reasonably acceptable tax rates.

CHAPTER I

# INTRODUCTION: SHORTCOMINGS OF THE CORPORATE INCOME TAX

The corporate income tax has come under strong fire from taxpayers and policy analysts. It is criticized as being both unfair and inefficient, particularly in its effect on business investment. The critics vary widely, however, as to what exactly is wrong with the current tax system and how it ought to be changed.

## SOURCES OF DISCONTENT

Specific complaints relate to many aspects of the tax, including its declining importance as a source of federal revenue, its distorting effects on economic decisions, its uneven effects on taxpayers and industries, and its increasing complexity.

### Falling Revenues

One of the most basic concerns about the corporate tax is its ability to raise revenue. In 1981, the Congress made major changes as part of the Economic Recovery Tax Act of 1981 (ERTA, P.L. 97-34) that drastically reduced corporate tax revenues in future years.[1] The Accelerated Cost Recovery System (ACRS) increased tax deductions for depreciation, and an expanded investment tax credit (ITC) provided a larger tax credit for some new investments.

The tax increases legislated in the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA, P.L. 97-248) and the Deficit Reduction Act of 1984 (DEFRA, P.L. 98-369) have partially offset this revenue loss (see Table 1).

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1 Because the investment rules also apply to noncorporate business, revenues from the individual income tax were also reduced by the business tax provisions in ERTA.

Corporate tax revenues under current law in 1985 and 1986 are expected to be 10 percent to 15 percent lower than under pre-ERTA law. By 1989, current law should produce as much in corporate tax revenue as prior law did. Given the large budget deficits in the next few years, it has been argued that further increases in the corporate tax are necessary to close part of the budget gap.

## Tax Neutrality

Critics of the corporate tax have charged that it is inefficient because it interferes too much in investment decisions. Recent changes in the depreciation system, together with the investment tax credit, have resulted

TABLE 1. REVENUE EFFECTS OF CORPORATE TAX LEGISLATION

| Year | Pre-ERTA Law | Revenue Effect of ERTA | TEFRA | DEFRA | Current Law |
|---|---|---|---|---|---|
| 1980 | 64.6 | 0.0 | 0.0 | 0.0 | 64.6 |
| 1981 | 63.4 | -2.3 | 0.0 | 0.0 | 61.1 |
| 1982 | 57.6 | -8.4 | 0.0 | 0.0 | 49.2 |
| 1983 | 46.1 | -15.7 | 6.6 | 0.0 | 37.0 |
| 1984 | 64.8 | -23.0 | 14.5 | 0.6 | 56.9 |
| 1985 | 73.7 | -30.1 | 15.4 | 3.5 | 62.5 |
| 1986 | 79.8 | -41.0 | 26.2 | 6.1 | 71.1 |
| 1987 | 92.3 | -47.1 | 34.9 | 8.4 | 88.5 |
| 1988 | 97.1 | -45.8 | 35.0 | 9.9 | 96.2 |
| 1989 | 100.1 | -40.9 | 31.9 | 10.7 | 101.8 |
| 1990 | 104.0 | -38.6 | 30.6 | 11.3 | 107.3 |

SOURCE: Congressional Budget Office.

NOTE: These are static revenue estimates and do not reflect changes in economic activity, such as corporate economic profits or investment, that might result under the alternative tax policy regimes.

in large disparities in effective marginal tax rates across industries.[2] Firms in different industries that invest in different combinations of assets are subject to widely varying tax rates. For example, firms that rely more on buildings and structures in producing their output are more heavily taxed than those that use relatively more equipment and machinery. Taking these and other special code provisions into account, the current system might best be described as one in which every firm has its own nominal tax rate. One recent study of 238 nonfinancial corporations found that 58 paid no tax or received a tax refund on reported earnings of $47.4 billion; their average tax rate was -6.7 percent. By contrast, 38 companies paid an average tax rate of over 30 percent.[3]

Such widely varying tax rates exert a bias on investment decisions: they cause relatively productive investments to be passed over in favor of other less productive investments simply because of lower taxes. To the extent that some firms or industries have lower tax rates, more resources may be allocated to them at the expense of more highly taxed industries. The system thus encourages the production of some goods while inhibiting the production of others, with the consequence that the economy as a whole produces less output from a given amount of capital than if all assets were taxed the same. Nonneutral taxation also gives rise to perceptions that the tax is unfair among taxpayers. Even though the corporate tax has declined in importance as a revenue source, its effect on the performance of the economy may be greater than ever as a result of the differences in effective tax rates it imposes on income from various assets and industries.

## Tax Incentives and Tax Losses

Perhaps the sharpest criticism of the business tax incentives enacted in 1981 was directed at the provisions for "safe harbor leasing." These allowed

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2 For example, see Alan J. Auerbach, "Corporate Taxation in the United States," *Brookings Papers on Economic Activity, 2:1983* (Washington, D.C.: Brookings Institution, 1984), pp. 451-513; and Jane Gravelle, "Capital Income Taxation and Efficiency in the Allocation of Investment," *National Tax Journal*, vol. 36 (September 1983), pp. 297-306.

3 For purposes of this study, the average tax rate was defined as current federal tax liability divided by earnings reported on financial statements over the 1981 to 1983 period. Robert S. McIntyre and Dean C. Tipps, *The Failure of the Corporate Tax Incentives* (Washington, D.C.: Citizens for Tax Justice, January 1985).

firms not currently taxable to sell tax benefits to taxable firms through a sale-leaseback arrangement. The purpose was to enable firms in a tax loss position, such as new companies, to receive part of the benefits from the newly liberalized depreciation rules and investment credits. The transfer of tax benefits may also have reduced the incentive for corporate mergers motivated by tax considerations.

The safe harbor leasing arrangements were eliminated after the public reacted negatively to the open buying and selling of tax benefits. They had also been criticized by some analysts as being overly generous.[4] Traditional leasing rules, however, still allow firms with tax losses to receive part of the benefits of investment incentives.

The controversy over leasing is one part of a larger debate about the use of the tax system to deliver investment subsidies. Because this is the primary mechanism used for promoting investment, only firms with sufficient taxable income are eligible to take direct advantage of the incentives. The bias against firms that are not currently profitable, such as start-up firms, would not exist if the subsidies took the form of direct investment grants, or if tax losses and credits were refundable. Refundability would allow a firm with no tax liability to receive payment from the Treasury equal to the value of the unused deductions or tax credits.

## Double Taxation of Dividends

The corporate tax has long been criticized as "double taxation," in that corporate income is taxed twice--when it is earned by the corporation and when it is distributed to stockholders in the form of dividends.[5] Another form of double taxation occurs when a stockholder sells shares and pays taxes on capital gains, which presumably reflect the value of any retained earnings. Retained earnings reflected in capital gains are subject to a much lower personal tax than the tax levied on current dividends.

The "double" taxation of corporate income has been subject to much criticism. Even those who favor taxing the income retained by corporations

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4 Donald C. Lubick and Harvey Galper, "The Defects of Safe Harbor Leasing and What To Do About Them," *Tax Notes*, March 15, 1982, pp. 643-652.

5 Under present law, individual taxpayers are allowed to exclude $100 ($200 for joint returns) of dividend income; the remainder is taxed as ordinary income.

often concede that dividends should not also be subject to the corporate tax. The current tax on dividends has been criticized by some as treating taxpayers unfairly. For example, two investors in the same tax bracket can pay widely differing amounts in tax simply because one owns shares in a corporation and the other owns bonds issued by the same corporation. (Income from bonds is taxed only at the personal level, and interest on bonds is deductible at the corporate level.)

The special tax on corporate income is also thought to reduce incentives to invest in the corporate sector. Because corporate income is taxed at a higher rate (taking into account both corporate and personal taxation) than the income of noncorporate businesses, the tax system tends to favor investment in noncorporate businesses, such as partnerships and sole proprietorships. To the extent that resources are directed away from the corporate sector, the current stock of physical capital produces less output than if all capital were subject to the same rate of tax, all else being equal.

## Tax Bias in Corporate Financing

The separate corporate tax also biases financing decisions toward debt rather than equity. Income generated from debt-financed assets used to repay creditors is, for all practical purposes, exempt from corporate taxation because interest payments are deductible. Earnings paid out to stockholders, however, are not deductible. (At the personal tax level, both interest payments and dividends are subject to full taxation.) The difference in corporate tax treatment of interest and dividends gives corporations an incentive to rely more heavily on debt financing.[6] To the extent that they do so, corporations increase their susceptibility to bankruptcy with all its private and social costs.[7] These costs include legal and administrative costs in bankruptcy proceedings and economic dislocations if firms must be reorganized or liquidated.

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6 See J. Gregory Ballentine and Charles E. McLure, Jr., "Taxation and Corporate Financial Policy," *The Quarterly Journal of Economics*, vol. 94 (March 1980), pp. 351-372.

7 Roger H. Gordon and Burton G. Malkiel, "Corporation Finance," in Henry J. Aaron and Joseph A. Pechman, eds., *How Taxes Affect Economic Behavior* (Washington, D.C.: Brookings Institution, 1981), pp. 131-198.

Effects of Inflation on Income Accounting

One of the most widespread concerns about the corporate income tax is that the income defined for tax purposes often bears little relation to real economic income. A firm's real income includes not only the difference between receipts and outlays but also changes in the market value of its assets and liabilities (appreciation or depreciation) that are not readily ascertainable.

For example, in the case of a firm's physical assets, calculation of real depreciation entails determining the real change in the value of an asset over the tax year. Even when inflation is zero, this measurement is difficult because assets are not resold every year and there are no developed secondary markets for most of them. Consequently, depreciation is measured by ad hoc schedules that may or may not reflect real economic depreciation. To the extent that these schedules under- or overstate real depreciation, the measure of real economic income will be distorted.[8]

The problem of measuring economic income is complicated by the effects of inflation on the accounting measure of income from capital assets. Because depreciation allowances (and other provisions for the recovery of asset costs) are based on the historical cost of an asset, inflation reduces their real value over time. Depreciation allowances that were appropriate during a period of 3 percent inflation are inadequate when it rises to 10 percent. By reducing the real value of depreciation allowances, inflation increases effective corporate tax rates and can lead to rates well in excess of the statutory tax rate. Indeed, one reason the Congress adopted the business incentives in ERTA was to counter the impact of inflation on corporate tax rates.

The current tax system remains highly sensitive to the rate of inflation. While ERTA provided a significant increase in the value of depreciation allowances accorded capital assets, thereby reducing the effective corporate tax rate, it did not tie the real value of these allowances to fluctuations in the inflation rate. Inflation will continue to cause corporate tax rates to vary and will remain an element of uncertainty in a firm's decision to invest in one asset as against another.

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8 A more extensive discussion of depreciation and its relationship to economic income is presented in Chapter VI and Appendix B.

Income from physical assets other than depreciable capital can also be subject to widely varying tax rates, depending on the inflation rate.[9] For example, the effective tax rate on inventory or natural resource investments is quite sensitive to the prevailing rate of inflation. Inflation also affects the taxation of debt-financed assets because firms are allowed to deduct nominal interest payments that exceed the real interest expense. Income from financial assets and liabilities (stocks and bonds) is similarly mismeasured for tax purposes.[10] For example, capital gains taxes on the sale of stock shares are based on the difference between their current market price and their original acquisition cost--an amount that can have a large inflationary component. Thus, to the extent that purely nominal gains are subject to tax, inflation can automatically raise effective corporate tax rates. Again, unexpected changes in inflation add uncertainty to corporate planning through their effect on taxes. Because of this, some have argued that the corporate income tax base should be indexed for inflation. (It should be noted that the problems created by inflation apply to noncorporate business income as well.)

## Corporate Tax Complexity and Uncertainty

One principle of taxation is that a tax should be easily understood and its potential liabilities known before long-term decisions are made.

As the corporate income tax has evolved, it has become more and more complex. The continual addition (and deletion) of provisions in the tax code has made it more difficult for firms to arrange their financial and investment plans. For example, if a firm is too successful at using selected corporate tax preferences (such as percentage depletion), it is now subject to an "add-on minimum tax" equal to 15 percent of the sum of selected preferences in excess of $10,000 or the firm's regular tax, whichever is greater. The adoption of the add-on corporate minimum tax has complicated the task of analyzing the attractiveness of alternative investments.

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9 John B. Shoven and Jeremy I. Bulow, "Inflation Accounting and Nonfinancial Corporate Profits: Physical Assets," *Brookings Papers on Economic Activity, 3:1975* (Washington, D.C.: Brookings Institution, 1975), pp. 557-611.

10 John B. Shoven and Jeremy I. Bulow, "Inflation Accounting and Nonfinancial Corporate Profits: Financial Assets and Liabilities," *Brookings Papers on Economic Activity, 1:1976* (Washington, D.C.: Brookings Institution, 1976), pp. 15-66.

Not only does current tax law make compliance costly and planning difficult, but the prospect of frequent legislative changes also adds uncertainty. Changes in the taxation of investments make it difficult for firms to make long-run capital plans. Changes in depreciation rules and tax credits also influence corporate investment decisions, depending on whether the changes are regarded as temporary or permanent.

### The Corporate Tax as a Tool of Economic Policy

The corporate tax is used not only to raise revenue but to influence economic activities. The system is asked to encourage investment in equipment and machinery (through ACRS), to foster oil production (through percentage depletion and expensing of intangible drilling costs), to encourage timber growing (through capital gains treatment of timber), to increase research and experimentation (through R&E tax credits and expensing of R&E expenditures), and to promote restoration of old buildings (through the tax credit for preservation of historic structures). In this way, the tax code allocates investment where it might not otherwise be undertaken. It does so partially at the expense of investment in possibly more productive alternatives. Its incentives not only make the tax code more complex and reduce corporate tax revenues, they may also reduce future output. (If they promote some desirable social or economic policy, however, as in the case of anti-pollution incentives, they may be worth their cost.)

## THE TAX BASE: INCOME VS. CONSUMPTION

Dissatisfaction with the corporate tax has led to proposals to restructure it. Much of the attention has been focused on two basic alternatives: income and consumption. Although income has traditionally been the basis for taxation some advocate changing the tax base to consumption.[11] The fundamental distinction between an income and a consumption tax is that the latter would not tax earnings from capital. It would tax only income used to purchase consumption goods; this implies that corporate as well as personal income would be taxed only when it was consumed. The case for the consumption tax rests on the argument that a tax on capital income biases

11 For a discussion of consumption versus income taxation, see Congressional Budget Office, *Revising the Individual Income Tax* (July 1983).

biases consumption-saving decisions toward consumption[12] To the extent that it does so, it may inhibit the growth of the nation's capital stock and thus reduce economic growth.

Other intermediate alternatives have been suggested--for example, a "lifetime-income tax" that would operate like a pure consumption tax, but would also tax accumulated savings when transferred as a gift or bequest.[13] In this system, the ability to pay taxes would be defined as lifetime capacity to consume--not simply actual consumption. Another compromise would be a comprehensive income tax that levied a lower tax on capital income than on labor earnings. This might include a broad-based corporation income tax levied at a relatively low rate.

The Congress itself moved partway toward a consumption tax when it established accelerated tax deductions for depreciation, along with the investment tax credit, and expanded Individual Retirement Accounts (IRAs). The resulting system has been characterized as a "hybrid," using income tax rules in some instances (such as interest or dividends), and consumption-type rules in others (ACRS and IRAs), but neither with any consistency.[14] This inconsistency allows taxpayers to structure their transactions so as to make a profit at the expense of the Treasury, often with very little risk. For example, it is currently permissible to borrow funds, deduct the interest, and invest in a tax-preferred asset such as an IRA or ACRS property. This has led some to argue that the tax structure (both individual and corporate) should be rationalized in one way or another--by extending either consumption tax or income tax treatment to all transactions.

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12 For example, see Martin Feldstein, "The Welfare Cost of Capital Income Taxation," *Journal of Political Economy*, vol. 86, no. 2, part 2 (April 1978), pp. S29-S51; and David F. Bradford, "The Economics of Tax Policy Toward Savings," in George M. von Furstenberg, ed., *The Government and Capital Formation* (Cambridge, Massachusetts: Ballinger Publishing Company, 1980), pp. 11-71.

13 Henry J. Aaron and Harvey Galper, "Reforming the Tax System," in Alice M. Rivlin, ed., *Economic Choices 1984* (Washington, D.C.: Brookings Institution, 1984).

14 William D. Andrews, "A Consumption-Type or Cash Flow Personal Income Tax," *Harvard Law Review*, vol. 87 (April 1974), p. 1120.

## PLAN OF THE STUDY

Given the list of complaints about the current corporate income tax, it is not surprising that one ex-Treasury official has characterized the system as "the worst of all worlds, one with economic damage from high marginal rates without collecting very much revenue."[15] This paper reviews the current state of the corporate income tax and offers several major options for restructuring it. Each of these options is considered within the context of both income and consumption taxation.

The corporate tax is placed in its historical context in Chapter II. The general rationale for a tax on corporate income is discussed in Chapter III. Chapter IV examines some of the consequences of the corporate income tax and its possible effects on economic decisions, such as those related to investment or corporate finance. The chapter also examines the equity of the tax.

To a large extent, the uneven taxation of corporate income is a result of incentive provisions designed to promote one activity or another.[16] The two most important are the investment tax credit and accelerated depreciation; their implications for effective tax rates are discussed in Chapter V. Other factors affecting tax rates, such as inflation and net operating losses, are also considered.

Chapter VI presents a brief overview of the debate between the advocates of consumption and those who defend income as the basis for taxation. Although income has longstanding precedence as the best measure of ability to pay taxes, this view has been challenged by those who believe that consumption provides a better measure within the context of an individual's lifetime. Consumption tax proponents also argue that the tax is more efficient and could produce greater capital formation than does an income tax.

Chapters VII and VIII set forth options for changing the corporate tax that are consistent with using economic income as the overall basis for taxation. Chapter VII discusses changes that would broaden the base of the

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15 Calvin Johnson, "Chapoton Calls for ACRS Cutback to Strengthen Corporate Tax," *Tax Notes*, April 23, 1984, p. 344.

16 The individual income tax on sole proprietorships and partnerships also suffers from many of the same inefficiencies because tax incentives are usually applied to all forms of business organization.

income tax and result in a more accurate measure of income. These include such items as instituting economic depreciation, eliminating tax credits, indexing asset and liability accounts for inflation, and taxing capital gains in full. (Many of the changes in the corporate tax would apply with equal force to the personal income tax base, such as those related to depreciation.) Integrating the corporate and personal tax systems, within the context of the income tax, is the topic of Chapter VIII.

Chapter IX presents some of the provisions that might be included in shifting the corporate tax to a consumption basis, such as the immediate expensing of all asset-related acquisition costs and the inclusion of borrowing in the tax base. Outright repeal of the corporate tax might also be considered as being consistent with the idea that people should pay tax based on their consumption and not their income. In this case, they would pay tax only when they sold their stock shares or used their dividends to finance consumption expenditures.

This paper presents a broad overview of the basic corporate income tax. It does not deal extensively with the specific features of certain selected industries, such as banking, life insurance and other financial institutions, agriculture, or public utilities. The taxation of multinational corporations is not considered in detail, although several of the more important provisions are briefly discussed. Provisions relating to employer-paid fringe benefits, such as pensions, health insurance, or business and entertainment expenses, and those relating to corporate takeovers, mergers, and liquidations, are not discussed, although these are by no means insignificant features of the tax system.

CHAPTER II

# HISTORY OF THE CORPORATE INCOME TAX

The present corporate income tax system is the outcome of 75 years of tax legislation. It has evolved through numerous political compromises: each major tax provision has its own historical genesis and rationale. The Congress has usually taken an incremental approach to amending tax statutes, rather than starting afresh and rewriting them. The result is an amalgam of tax rules that often work at cross purposes and are inconsistent with a broadly defined concept of income taxation. This chapter traces the evolution of several of the more important tax provisions that now exist, and the resulting decline of the tax as a source of revenue.

## THE STATUTES

The modern corporate income tax was first enacted in 1909 as a 1 percent "excise" tax on corporate net income.[1] The Congress termed the tax an excise tax out of concern that a direct income tax could be challenged on constitutional grounds.[2] It was passed as a compromise between advocates of an income tax on both corporations and individuals, and those who wanted no income tax at all.

The 1909 corporate tax was levied at a flat rate, although it allowed an exemption of $5,000. It also allowed the deduction of interest expenses, even though there was concern that as a result corporations might substitute

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1 36 Stat. 112.

2 The United States had imposed an income tax during the Civil War, and the tax lasted until 1872. In 1894, the Congress passed a personal income tax that was declared invalid by the Supreme Court on the ground that it was a "direct tax," and therefore unconstitutional because it was not apportioned to the states according to representation. See Pollock v. Farmers Loan and Trust Company, 157 U.S. 429; 158 U.S. 601.

debt for equity finance in order to escape taxation. Intercorporate dividends (dividends received from other taxable corporations) were excluded from taxable income, to ensure that income in the corporate sector would be taxed only once. Foreign taxes, as well as other federal or state taxes, were allowed as deductions. Depreciation allowances were also provided. The Supreme Court reviewed the new corporation tax in 1911. In *Flint v. Stone Tracy Company*, 220 U.S. 107, it decided that the tax was not a direct tax but an excise tax on the privilege of doing business in a corporate capacity.

From 1913 to 1954

In 1913, the Sixteenth Amendment to the Constitution was adopted, giving the Congress the power to "collect taxes on incomes, from whatever source derived, without apportionment among the several states, and without regard to any census or enumeration." Following ratification of this amendment, the Congress passed an income tax law that applied a 1 percent levy to the incomes of both corporations and individuals.[3] Although the 1909 excise tax had allowed a $5,000 exemption for corporations, the 1913 corporate tax provided none. The personal tax allowed an exemption of $4,000 for married couples ($3,000 for single taxpayers). In addition to the 1 percent "normal" tax on individuals, the law imposed surtax rates ranging from 1 percent on personal income between $20,000 and $25,000 to 6 percent on income above $500,000.

The 1913 income tax prevented "double" taxation of corporate distributions by providing a dividend exclusion from income subject to the normal 1 percent personal rate, but not to the surtax rates. (In this way, dividends were taxed by the 1 percent corporate tax and by the personal surtax, but not by the 1 percent normal personal tax.) Although intercorporate dividends had been excluded from taxation under the 1909 tax, they were not under the 1913 act; this exclusion was restored, however, in the 1918 Revenue Act (40 Stat. 1057). The 1913 corporate tax also applied in full to corporate capital gains, with a full offset for capital losses.

Soon after the 1913 income tax law, the Congress enacted large tax increases to finance World War I. Both individual and corporate tax rates were raised, and two additional taxes were imposed on corporations: a capital stock tax and an excess profits tax. The capital stock tax, equivalent to a national property tax on corporations, lasted from 1916 to 1945 (although it was not levied between July 1, 1926, and June 30, 1932).

3 Income Tax Act of 1913, 38 Stat. 114.

The excess profits tax was imposed only during the two World Wars and the Korean War. Levied at a high rate, it raised substantially more revenue than the regular corporate tax during the two World Wars, although not during the Korean War.

The higher regular tax rates on corporations were left intact during the 1920s and 1930s, when regular rates ranged from 10 percent to 20 percent. In 1939, the top corporate tax rate was 19 percent on net income in excess of $25,000, with lower graduated rates on income less than $25,000. Several major provisions were added to the tax code during these years:

- Percentage depletion for oil and gas wells was adopted in 1926. Other minerals were added in the Revenue Act of 1932 (47 Stat. 169) and in subsequent revenue acts.[4]

- The foreign tax credit was substituted for the deduction for foreign taxes in 1918. An overall limit on the amount of the credit was imposed in the Revenue Act of 1921 (42 Stat. 227) in order to prevent firms from lowering their U.S. taxes on domestic income. An additional "per country" limit was added in 1932.[5]

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4 Percentage depletion allows a producer to take as a deduction a certain percentage of the firm's gross revenues. The 1926 act allowed oil and gas producers a deduction equal to 27.5 percent of their revenues from oil and gas extraction. The provision for percentage depletion replaced an earlier provision for "discovery-value" depletion whereby producers were allowed to recover the market value of a reserve after discovery, a value much larger than cost. The discovery-value depletion provision was introduced in the Revenue Act of 1918 (40 Stat. 1057), and the percentage depletion rules adopted in 1926 (44 Stat. 9) were designed to approximate the value of the 1918 provision. See Susan R. Agria, "Special Tax Treatment of Mineral Industries," in Arnold C. Harberger and Martin J. Bailey, eds., *The Taxation of Income from Capital* (Washington, D.C.: Brookings Institution, 1969).

5 The limit prevents taxpayers from taking foreign tax credits for foreign taxes in excess of the prevailing tax rate in the United States. For example, if a company earns $100 of foreign income, and the United States tax rate is 20 percent, the limit on foreign tax credits is $20. The overall limit applies to all foreign countries aggregated together. The "per country" limit calculates a separate limit for each country. In general, the per country limit is more restrictive, although not always.

- Loss carryovers and carrybacks (of one year each) were first allowed in the Revenue Act of 1918, although eliminated in the National Industrial Recovery Act of 1933 (48 Stat. 195). A loss carryover allows a firm to deduct a current year's loss against future income; a loss carryback allows a firm to deduct a current loss against past income, usually resulting in a refund of past taxes. These provisions were adopted as a kind of income averaging for corporations. Carryovers were permanently restored in 1939, and carrybacks in 1942.[6]

- Between 1918 and 1935, intercorporate dividends were allowed a full (100 percent) exclusion in order to prevent double corporate taxation of dividends. In the Revenue Act of 1935 (49 Stat. 1014), the full exclusion was reduced to 90 percent, and in the Revenue Act of 1936 (49 Stat. 1652) to 85 percent--the current level of exclusion.

- Prior to 1936, dividends received by individuals were excluded from normal personal tax, although they were subject to the surtax rates. The Revenue Act of 1936 applied the normal tax to dividends for the first time, resulting in full personal taxation of distributed corporate earnings.

- Prior to 1932, capital gains earned by corporations were taxed at full corporate rates, and losses were fully deductible. In the Revenue Act of 1932, some restrictions were placed on the amount of capital losses deductible in a given year. The Revenue Act of 1942 (56 Stat. 798) limited the deductibility of capital losses to the extent of capital gains. The 1942 law also reduced the tax rate on long-term capital gains from the full 40 percent tax rate to 25 percent.[7] The minimum holding period for a long-term gain was set at six months.

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6 The Revenue Act of 1939 (53 Stat. 862) allowed losses to be carried over two years; the Revenue Act of 1942 (56 Stat. 798) allowed losses to be carried back two years.

7 A preferential tax rate on long-term capital gains for individuals was first provided in the Revenue Act of 1921.

- In 1938, the Congress first allowed the limited use of the "last in, first out" (LIFO) method of accounting for inventories. In 1939, LIFO was extended to all taxpayers, as long as it was the same method used for financial reporting purposes.[8]

One notable temporary innovation in corporate taxation was the inclusion in the 1936 Revenue Act of a surtax on undistributed corporate profits. Because some high-income taxpayers were subject to personal tax rates higher than the top corporate tax rate, there was concern that wealthy taxpayers were avoiding taxation by accumulating earnings in corporations. The undistributed profits tax was viewed as a means of taxing those earnings not distributed to taxpayers (thus reducing the incentive to retain earnings). It turned out to be short-lived, however; it was significantly reduced by the Revenue Act of 1938 (52 Stat. 447) and repealed in the 1939 Revenue Act.

During World War II, the regular tax rates on corporations were substantially increased; the top rate was 40 percent (on income over $50,000) between 1942 and 1945. (This does not include the extra taxes paid under the excess profits or capital stock taxes.) After the war, the top rate was lowered only to 38 percent. During the Korean War, rates were raised again, reaching a top rate of 52 percent (on income over $25,000) in 1952. This rate remained in effect until 1964.

## The 1954 Internal Revenue Code

In 1954, the Internal Revenue Code was overhauled. Although most of the prior law was retained, the new code rearranged provisions, deleted obsolete material, and attempted "to express the internal revenue code in a more understandable manner."[9] The 1954 tax law (68A Stat. 3) clarified many issues and introduced several provisions that statutorily authorized certain standard practices and Treasury regulations. Among the significant provisions:

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8 The LIFO method of inventory accounting allows firms to measure the cost of selling goods at the prices of the most recently acquired goods, regardless of the actual physical flow. During times of rising prices, LIFO provides a tax advantage over other methods of accounting because it increases the deduction for the cost of goods sold.

9 *Internal Revenue Code of 1954*, H. Rept. 1137, House Committee on Ways and Means, 83:2 (1954), part I.

- Research and development expenditures were statutorily allowed as ordinary business deductions. Under prior law, these expenses could be deducted or amortized at the discretion of the taxpayer.

- The new code allowed individual taxpayers a $50 exclusion ($100 for joint filers), for corporate dividends received, as well as an additional 4 percent dividend tax credit. This exclusion was intended to provide some relief from double taxation for holders of corporate stock. Between 1936 and 1954, dividends had been taxed in full under the individual income tax.

- Loss carryovers were allowed for five years and carrybacks expanded from one to two years.[10]

- The per country foreign tax credit limitation was repealed, leaving only the overall limitation in effect.

- The deduction for oil and gas intangible drilling costs was statutorily authorized for the first time.[11] Prior to 1954, producers had deducted these expenditures under Treasury regulations first issued in 1917.[12] For other extractive industries, such as coal or iron ore mining, the 1954 code expanded the provision for the immediate write-off (expensing) of development costs that had been originally adopted in the Revenue Act of 1951 (65 Stat. 452). Before 1951, firms had been required to capitalize mining expenses related to developing mineral deposits.

Perhaps the most important change in corporate taxation made by the 1954 code was the statutory change in methods allowable for depreciating fixed assets. Prior to 1954, IRS regulations required that tax depreciation conform to detailed estimates of useful lifetimes prescribed in Bulletin "F" unless a shorter life could be justified. (Bulletin F described about 5,000 asset classes and tax lives.) Deductions were generally based on the straight-line method of depreciation, although the IRS had sanctioned the

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10 Between 1939 and 1950 two-year carryovers were allowed; this was expanded to five years by the Revenue Act of 1950 (64 Stat. 962). Two-year carrybacks were allowed from 1942 to 1950 when they were reduced to one year.

11 Intangible drilling costs are those nonsalvageable costs, such as labor and supplies, used to develop oil and gas reserves.

12 Agria, "Special Tax Treatment of Mineral Industries," p. 90.

optional use of the 150 percent declining balance method in 1946.[13] In 1954, about 89 percent of corporate assets were depreciated using straight-line depreciation.[14]

The Internal Revenue Code of 1954 sanctioned the use of two other accelerated depreciation methods, "double-declining balance" and "sum-of-the-years'-digits" (SYD) for both equipment and structures. The rationale for these more rapid depreciation formulas was that faster write-offs would stimulate investment and economic activity:

> More liberal depreciation allowances are anticipated to have far-reaching effects. The incentives resulting from the changes are well timed to help maintain the present high level of investment in plant and equipment. The acceleration in the speed of the tax-free recovery of costs is of critical importance in the decision of management to incur risk. The faster tax write off would increase available working capital and materially aid growing businesses in the financing of their expansion. For all segments of the American economy, liberalized depreciation policies should assist modernization and expansion of industrial capacity, with resulting economic growth, increased production, and a higher standard of living.[15]

The use of accelerated methods quickly became widespread; by 1961, the percentage of all corporate assets subject to straight-line depreciation had fallen to 50 percent.[16]

## New Investment Incentives in the 1960s

In 1962, the Treasury introduced new depreciation guidelines that completely revised the tax lives accorded assets under Bulletin F. IRS Revenue

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13 Department of the Treasury, *The Adoption of the Asset Depreciation Range System* (June 1971), p. 14.

14 Department of the Treasury, Internal Revenue Service, *Statistics of Income, Corporation Income Tax Returns: 1959-60* (1961), Table E.

15 H. Rept. 1337, House committee on Ways and Means, 83:2 (1954).

16 Department of the Treasury, Internal Revenue Service, *Statistics of Income, Corporation Income Tax Returns: 1961-62* (1963), Table E.

Procedure 62-21 collapsed the 5,000 Bulletin F classes into about 100 separate groupings and shortened tax lives for equipment by 30 to 40 percent.[17] Tax lives for structures were essentially left unchanged, although structures integral to a production process were to be depreciated as equipment. This provision allowed many assets (particularly public utility structures, but also assets such as blast furnaces) to be treated like equipment. The new classes categorized assets according to the broad industries in which they were used, rather than on the basis of a detailed identification of the assets themselves.[18] The guidelines treated most assets primarily used in one industry as a class, even though the assets in each industry are not usually homogeneous with respect to age, useful life, or physical characteristics. Thus, for example, a tobacco manufacturer was required to depreciate most assets specifically used in the production of tobacco products over the same life (15 years). On the other hand, widely used assets such as office furnishings, computers, or trucks were each placed in a separate asset class, regardless of their industry. In addition to reducing the complexity of the depreciation system, the new guidelines were intended to provide a more realistic and accurate measure of depreciation than previously allowed.

A second investment incentive--the investment tax credit (ITC)--was also adopted in the Revenue Act of 1962 (Public Law 87-834). The ITC allows businesses to deduct a percentage of the purchase price of equipment from their tax bills, thereby lowering the net cost of acquisition. (In general, no credit was or is allowed for buildings or structures.) Initially, the ITC was set at 7 percent for equipment and machinery with a concomitant requirement that the depreciable basis of an asset be reduced by the amount

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17 Norman Ture has estimated that the new guidelines reduced manufacturing tax lives by 32 percent. However, because taxpayers often used shorter lives than those in Bulletin F, based on facts and circumstances, he estimated that tax lives were reduced by only 15 percent over those lives used in actual practice. See Norman B. Ture, "Tax Reform: Depreciation Problems," *American Economic Review*, vol. 53 (May 1963), pp. 334-353.

18 Although the depreciation deductions allowed under the guidelines were governed by industrywide standards, tax lives were substantially shortened from the actual average experience of the firms within an industry. Department of the Treasury, *The Adoption of the Asset Depreciation Range System* (June 1971), p. 17.

of credit.[19] Thus, if a firm utilized the 7 percent credit, it could depreciate only 93 percent of the cost of the asset.[20] In 1964, the requirement that the depreciable basis of an asset be reduced by the amount of the credit was repealed. Until enactment of the Tax Equity and Fiscal Responsibility Act in 1982, firms were able to accrue depreciation deductions on the full amount of the tax credit.

In the Revenue Act of 1964 (Public Law 88-272), the top corporate tax rate was reduced from 52 percent to 50 percent in 1964, and to 48 percent in 1965.

As part of an effort to reduce inflationary pressures arising from the financing of the Vietnam War, the investment tax credit was suspended from October 1966 to March 1967. It was then restored from March 1967 to April 1969, repealed in April 1969, and subsequently restored again in August 1971.[21] In addition, the more generous methods of depreciation allowed by the 1954 code--SYD and double-declining balance--were temporarily withdrawn for structures (except residences) from October 1966 (Public Law 89-800) to March 1967 (Public Law 90-26), and were permanently repealed by the Tax Reform Act of 1969 (Public Law 91-172). Thus, nonresidential structures were limited to the 150 percent declining balance method of depreciation after 1969--though equipment and machinery depreciation methods were not changed. In addition, a 10 percent income tax surcharge was applied in 1968 and 1969; this was decreased to 2.5 percent in 1970.[22]

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19 The full 7 percent credit applied to property with a tax life of eight or more years. Property with a life of six or more years, but less than eight years, was eligible for a two-thirds credit; property with a life of four or more years, but less than six years, was eligible for a one-third credit. Property with a life under four years was ineligible for the credit.

20 This rule is otherwise known as the "Long Amendment" after its author, Senator Russell Long.

21 The credit was suspended by P.L. 89-800; restored by P.L. 90-26; repealed by the Tax Reform Act of 1969 (P.L. 91-172); and again restored by the Revenue Act of 1971 (P.L. 92-178).

22 Revenue and Expenditure Control Act of 1968 (P.L. 90-364) and the Tax Reform Act of 1969 (P.L. 91-172).

Adoption of the Asset Depreciation Range System

Depreciable lives were again altered by the Revenue Act of 1971 (Public Law 92-178), which allowed businesses the option of raising or lowering asset guideline lifetimes by 20 percent. The new system, the Asset Depreciation Range (ADR) system, had the effect of reducing statutory tax lives by 20 percent for most equipment.

The ADR system was adopted for two reasons: to ease the administrative burden of the guideline system, and to reduce the tax lives accorded machinery and equipment so as to take into account changes in economic conditions. By providing the option of lowering tax lives by 20 percent, the ADR system was intended to reduce the number of disputes between the IRS and taxpayers who chose to justify shorter tax lives on the basis of facts and circumstances. Taxpayers were still permitted to rely on facts and circumstances to justify shorter lives, but the reduction of 20 percent in the statutory tax life was thought sufficient to reduce disputes to a more manageable number. The administrative provisions of the ADR system recognized the impossibility of administering depreciation provisions on an individual taxpayer basis and completed the transition of the system to full reliance on industry averages.[23] In addition, a repair allowance provision was added so that the number of disputes beween the IRS and taxpayers over whether certain repairs should be expensed or capitalized was reduced. The basic thrust of these provisions was to reduce the friction between the IRS and the business community over the appropriate treatment of depreciation expenses.

The Treasury argued that tax lives had to be reduced to reflect changes in economic conditions between 1962 and 1971. Factors that the Treasury cited as important considerations in the move to shorter tax lives included: the increasing rate of technical obsolescence because of more widespread use of automated production technology; the increasing prevalence of strict environmental controls that shorten the economic lives of older assets; and the increasing threat of foreign competition using production facilities that were generally more modern and efficient than those used in this country. It was argued that shorter tax lives would serve to spur investment and promote economic growth.[24]

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23 Department of the Treasury, *The Adoption of the Asset Depreciation Range System* (June 1971), p. 54.

24 Ibid., pp. 59-68.

In 1971, the Congress also restored the 7 percent investment tax credit. In the Tax Reduction Act of 1975 (Public Law 94-12), the credit was temporarily increased to 10 percent from 7 percent and the 10 percent level was made "permanent" in the Revenue Act of 1978 (Public Law 95-600). The full credit applied only to producers' durable equipment with a service life of seven or more years. Equipment with a life of five or six years was eligible for a credit of 6.67 percent; equipment with a life of three or four years could receive a credit of 3.33 percent. Public utility property, including structures, was made eligible for the 10 percent credit in 1975.[25]

## Changes in the 1970s

Several other important changes of the tax code were included in the Tax Reform Act of 1969: the corporate long-term capital gains tax rate was increased from 25 percent to 30 percent; percentage depletion for oil and gas producers was reduced from 27.5 percent (set in 1926) to 22 percent; and the add-on minimum tax on corporate tax preferences was initiated. The minimum tax was adopted to meet concern that some taxpayers were avoiding most of their tax obligations through the use of tax preferences. As first enacted, the minimum tax consisted of an additional levy of 10 percent on the sum of selected tax preferences in excess of $30,000, after allowing a deduction for regular taxes paid.[26] The Tax Reform Act of 1976 (Public Law 94-455) increased the minimum tax rate to 15 percent and reduced the allowable deduction to $10,000 or the firm's regular tax liability, whichever was larger. Although the add-on minimum tax may be important to selected companies, it has not been a large source of revenue--in 1976, it raised about $193 million, or only 0.4 percent of corporate income taxes.

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25 In 1962, public utility property had been made eligible for a 3 percent credit; in 1971, this rate had been increased to 4 percent.

26 The tax preferences included under the Tax Reform Act of 1969 were: (1) accelerated depreciation (in excess of straight-line) on real property, (2) rapid amortization of pollution control facilities, (3) rapid amortization of railroad rolling stock, (4) tax benefits from stock options, (5) excess bad debt deductions of financial institutions, (6) percentge depletion (in excess of the adjusted basis of a property), and (7) net long-term capital gains in excess of short-term losses. The 1971 Revenue Act (P.L. 92-178) added the rapid amortization of expenditures for on-the-job training and child care facilities to the base of the minimum tax.

Other major alterations that affected the corporate income tax in the 1970s included: a lengthening of the holding period for long-term capital gains from six months to one year;[27] a reduction in the corporate tax rate on long-term capital gains from 30 percent to 28 percent;[28] a lengthening of the net loss carryover period from five to seven years (carrybacks remained at three years, as adopted in 1958 (Public Law 85-866));[29] further reduction and limitations on the oil and gas percentage depletion allowance;[30] and tightening of the rules regarding the foreign tax credit, with specific limitations on foreign tax credits for oil and gas producers.[31] Also, the top statutory rate was reduced from 48 percent to 46 percent by the Revenue Act of 1978.

## Recent Tax Legislation

The Economic Recovery Tax Act of 1981 (ERTA), as amended by the Tax Equity and Fiscal Responsibility Act of 1982, substantially increased investment tax incentives. ERTA increased the investment tax credit for short-lived equipment and introduced a completely new system of depreciation.

As originally enacted in ERTA, the Accelerated Cost Recovery System (ACRS) grouped all assets into only five asset-life classes. All ma-

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27 Tax Reform Act of 1976. The one-year holding period was reduced to six months for assets purchased before January 1, 1988, by the Deficit Reduction Act of 1984.

28 Revenue Act of 1978 (P.L. 95-600). The 28 percent maximum rate on long-term gains remains the current law.

29 Revenue Act of 1978. Currently, net operating losses can be carried back three years; the carryover period was extended to 15 years in ERTA.

30 Tax Reduction Act of 1975 (P.L. 94-12). The depletion percentage was phased-down to 15 percent by 1984, and integrated producers were made ineligible for the allowance.

31 The 1954 Tax Code required the use of the overall limitation on the calculation of the foreign tax credit. In 1960 (P.L. 86-780), the Congress allowed taxpayers the option of electing either the overall limitation or the per country limit. The Tax Reform Act of 1976 repealed the option of electing the per country limitation. Both the Tax Reduction Act of 1975 (P.L. 94-12) and the Tax Reform Act of 1976 tightened the rules for foreign tax credits related to foreign oil and gas income.

chinery and equipment was placed in one of four classes: 3-year property, for short-lived assets; 5-year property, for most other assets; 10-year property, for medium-lived public utility assets; and 15-year property, for long-lived public utility assets. All real property (buildings and structures) was included in one class with a tax life of 15 years. In addition to shortening depreciable lives radically, ACRS allowed accelerated depreciation methods. The law specified the exact depreciation schedules that firms should use, and the schedules were designed to approximate certain depreciation methods. For all machinery and equipment classes, 150 percent declining balance (switching to straight-line) was allowed for 1981 through 1984. In 1985, 175 percent declining balance (switching to sum-of-the-years'-digits (SYD)) would be allowed. Finally in 1986, firms would be able to use double declining balance (switching to SYD). For real property, assets would be depreciated by 175 percent declining balance (switching to straight-line) starting in 1981 and for all years thereafter.

The investment tax credit was also liberalized under ERTA. Machinery and equipment with an old ADR class life of 2.5 to four years was made eligible for a 6 percent credit, having previously been eligible for a 3.33 percent credit; machinery and equipment with a longer life was allowed the full 10 percent credit.[32] Structures, except those used by public utilities, remained ineligible for any investment credit. ERTA also included provisions for "safe harbor leasing," whereby firms that had extra tax allowances (because of a current operating loss) could execute a sale-leaseback of new equipment with a company with positive tax liability. This type of transaction enabled firms experiencing net operating losses to receive the benefits of ACRS and the investment credit through reduced rental payments.

The ACRS provisions adopted in 1981 were amended in 1982 by the Tax Equity and Fiscal Responsibility Act (TEFRA) in order to reduce potential revenue losses and to increase effective tax rates on those assets whose rates were considered too low under the original provisions. TEFRA eliminated the additional acceleration of depreciation methods, scheduled to occur in 1985 and 1986, and instituted a basis adjustment of 50 percent of the ITC.[33] For most machinery and equipment subject to ACRS, these

32 The credit was increased from 6.67 percent to 10 percent for equipment with an ADR life of five to seven years.

33 Under this provision, firms purchasing an asset receiving a 10 percent ITC will be ble to depreciate only 95 percent of the cost of the asset; for an asset receiving the 6 percent credit, only 97 percent of the cost can be depreciated. TEFRA also allowed taxpayers the option of reducing their ITC by two percentage points in lieu of making the basis adjustment.

changes retained the initial schedule of depreciation based on 150 percent declining balance (switching to straight-line) and required a reduction in the depreciable basis of an asset to 95 percent of its original cost. The depreciation provisions for real property were unaffected by TEFRA.

In addition to modifying ACRS, TEFRA significantly limited the transfer of tax benefits between taxpaying corporations and those with no current tax liability by repealing safe harbor leasing. The repeal of safe harbor leasing, however, was tempered by allowing firms to transfer some benefits through "finance" leases, which are governed by more liberal rules than the traditional leasing provisions. The Deficit Reduction Act of 1984 delayed the effective date of the finance leasing rules until 1988, thereby requiring leases to be covered by the more restrictive traditional leasing rules.

TEFRA also limited other corporate deductions. The act reduced certain tax preferences by 15 percent[34] and required firms to capitalize construction period interest and taxes that previously could be expensed.[35] The 1984 Deficit Reduction Act increased the tax preference cutback from 15 percent to 20 percent, except for coal and iron ore percentage depletion.

The Deficit Reduction Act further curtailed the benefits of ACRS by lengthening tax lives for real property from 15 to 18 years. The act also reduced the holding period for long-term capital gains from 12 to 6 months.

## CORPORATE TAX REVENUES

Over the last 30 years the corporate income tax has lost much of its significance as a revenue raiser. While other taxes have grown in impor-

34 The tax preferences subject to the 15 percent cutback were (1) depletion for coal and iron ore; (2) bad debt reserves of financial institutions; (3) tax-exempt interest of financial institutions; (4) DISC distributions; (5) capital gains on real property; (6) amortization of pollution control facilities; (7) intangible drilling costs; and (8) mineral exploration and development costs. To the extent that these preferences are also subject to the add-on minimum tax, an adjustment was made so that the combined effect of the cutback and the add-on tax is the same as the add-on tax alone.

35 Under prior law, corporations were allowed to deduct immediately interest and taxes related to the construction of assets. TEFRA requires firms to capitalize these costs and amortize them on a straight-line basis over 10 years.

tance, corporate tax receipts have declined, both in relation to other taxes and to gross national product (GNP). In part, this represents a decline in corporate profits. But it also reflects changes in the tax law. In the early 1950s, corporate taxes accounted for 30 percent of total federal receipts (see Table 2 and Figure 1). In 1965 they were 22 percent of revenues, and by 1975 only 13 percent. The current (1984) share is about 7.6 percent.

The declining trend is the result of several factors. Revenues from other government taxes, such as the individual income tax and the payroll tax, have grown in the last 30 years, while the Congress has periodically reduced the tax burden of corporations. In recent years, weak economic performance together with tax cuts have actually reduced corporate tax revenues in dollar terms: in 1979, $65 billion was collected, but by 1982 receipts had fallen to $31 billion. The current economic expansion has had a major effect on corporate tax collections, raising receipts into the $50 billion-$60 billion range.

Corporate tax receipts have also declined in relation to gross national product (see Figure 2) and corporate net product.[36] In the early 1950s, tax receipts accounted for around 5 percent of GNP and around 10 percent of corporate net product. By 1980, corporate taxes had declined to about 2 percent of GNP, and about 4 percent of corporate net product. Real corporate taxes (adjusted for price level changes) have declined from $72.7 billion (1984 dollars) in 1953 to $53.6 billion in 1984.

Several factors account for the decline in corporate tax revenues as a percent of GNP or corporate product. One of the primary explanations is the decline in corporate profits in relation to corporate product.[37] In 1950, profits were about 22 percent of corporate product; by 1980 this share had fallen to about 9 percent. Although this ratio has fluctuated over time, there appears to be a fairly steady downward trend. This is shown in the fifth column of Table 2. (Although not shown here, it should be noted that corporate net product, as a percent of total GNP, has grown slightly from about 50 percent in the 1950s to about 55 percent in the 1980s.)

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36 Corporate net product is the sum of corporate profits, net interest paid, labor compensation, and indirect business taxes. Corporate net product is like GNP, except that it is limited to the value of output produced in the corporate sector, after deduction for depreciation.

37 The definition of corporate profits is the NIPA measure of profits with the capital consumption and inventory valuation adjustments.

TABLE 2. CORPORATE INCOME TAX REVENUES, 1930-1984 (By calendar year, in percents)

| Calendar Year | Total Corporate Taxes [a] (millions of dollars) | Corporate Taxes as a Percent of | | | Economic [b] Profits as a Percent of Corporate Net Product | Capital [c] Income as a Percent of Corporate Net Product | Economic Profits as a Percent of Capital Income | Pretax Rate of Return on Capital Stock [d] |
|---|---|---|---|---|---|---|---|---|
| | | Total Federal Receipts | Gross National Product | Corporate Net Product | | | | |
| 1930 | 744 | 24.4 | 0.8 | 1.8 | 13.7 | 17.3 | 79.2 | NA |
| 1935 | 820 | 20.7 | 1.1 | 2.6 | 7.6 | 12.3 | 61.5 | NA |
| 1940 | 2,635 | 30.5 | 2.6 | 5.5 | 17.6 | 19.5 | 90.3 | NA |
| 1945 | 10,234 | 24.1 | 4.8 | 11.1 | 20.3 | 20.5 | 98.9 | NA |
| 1950 | 16,958 | 33.9 | 5.9 | 11.7 | 22.4 | 22.0 | 101.6 | 14.4 |
| 1951 | 21,421 | 33.3 | 6.5 | 12.9 | 22.0 | 21.6 | 101.7 | 14.5 |
| 1952 | 18,281 | 27.2 | 5.3 | 10.5 | 19.5 | 19.1 | 101.8 | 12.0 |
| 1953 | 19,135 | 27.3 | 5.2 | 10.3 | 18.3 | 18.0 | 101.8 | 11.5 |
| 1954 | 16,575 | 26.0 | 4.5 | 9.1 | 18.0 | 17.8 | 101.2 | 10.7 |
| 1955 | 20,821 | 28.7 | 5.2 | 10.1 | 20.7 | 20.4 | 101.2 | 13.5 |
| 1956 | 20,547 | 26.3 | 4.9 | 9.3 | 18.4 | 18.1 | 101.8 | 11.6 |
| 1957 | 19,861 | 24.2 | 4.5 | 8.7 | 17.3 | 17.1 | 101.3 | 10.2 |
| 1958 | 17,436 | 22.2 | 3.9 | 7.8 | 15.9 | 15.9 | 99.7 | 8.8 |
| 1959 | 21,573 | 24.0 | 4.4 | 8.5 | 18.2 | 18.0 | 100.9 | 11.0 |
| 1960 | 20,550 | 21.4 | 4.1 | 7.8 | 16.5 | 16.4 | 100.7 | 9.9 |
| 1961 | 20,804 | 21.2 | 4.0 | 7.6 | 16.5 | 16.5 | 99.8 | 10.0 |
| 1962 | 21,671 | 20.4 | 3.8 | 7.3 | 17.5 | 17.6 | 99.6 | 11.3 |
| 1963 | 23,698 | 20.7 | 4.0 | 7.4 | 18.0 | 18.2 | 99.1 | 11.9 |
| 1964 | 24,559 | 21.4 | 3.9 | 7.1 | 18.5 | 18.6 | 99.4 | 12.8 |
| 1965 | 27,602 | 22.2 | 4.0 | 7.3 | 19.5 | 19.8 | 98.4 | 14.3 |
| 1966 | 29,779 | 21.0 | 3.9 | 7.2 | 19.0 | 19.6 | 96.6 | 14.3 |
| 1967 | 28,119 | 18.7 | 3.5 | 6.4 | 17.2 | 18.2 | 94.5 | 12.7 |
| 1968 | 33,591 | 19.3 | 3.8 | 7.0 | 16.9 | 17.9 | 94.7 | 12.6 |
| 1969 | 33,045 | 16.8 | 3.5 | 6.3 | 14.5 | 15.9 | 91.0 | 11.3 |
| 1970 | 27,122 | 14.1 | 2.7 | 5.0 | 11.4 | 13.4 | 85.0 | 8.9 |

(Continued)

TABLE 2. (Continued)

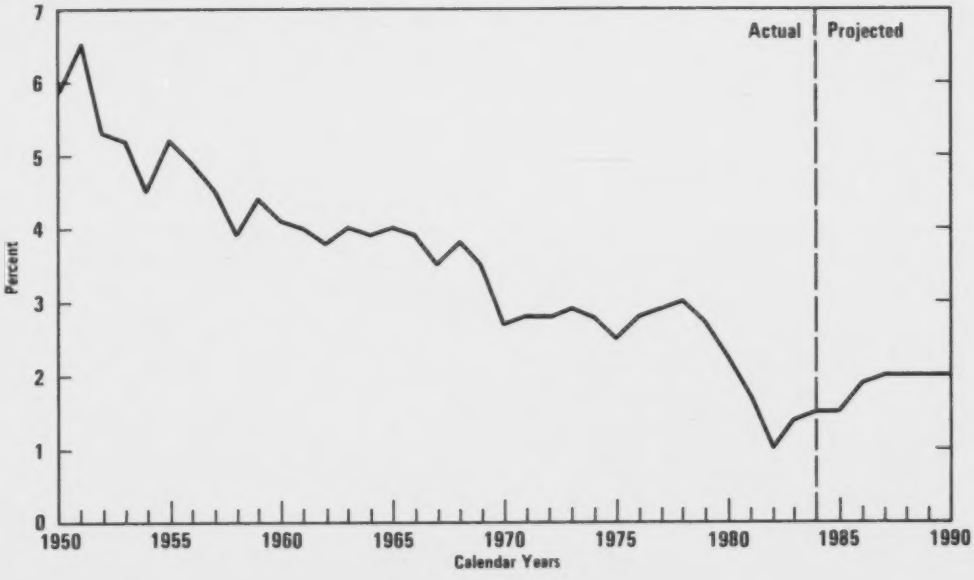
| Calendar Year | Total Corporate Taxes [a] (millions of dollars) | Corporate Taxes as a Percent of | | | Economic [b] Profits as a Percent of Corporate Net Product | Capital [c] Income as a Percent of Corporate Net Product | Economic Profits as a Percent of Capital Income | Pretax Rate of Return on Capital Stock [d] |
|---|---|---|---|---|---|---|---|---|
| | | Total Federal Receipts | Gross National Product | Corporate Net Product | | | | |
| 1971 | 30,099 | 15.2 | 2.8 | 5.2 | 12.5 | 14.3 | 87.4 | 9.4 |
| 1972 | 33,376 | 14.7 | 2.8 | 5.1 | 13.1 | 14.7 | 89.2 | 10.1 |
| 1973 | 38,919 | 15.0 | 2.9 | 5.4 | 12.4 | 14.2 | 87.8 | 10.0 |
| 1974 | 39,565 | 13.7 | 2.8 | 5.1 | 9.4 | 12.0 | 78.8 | 7.9 |
| 1975 | 38,177 | 13.3 | 2.5 | 4.6 | 11.1 | 13.6 | 81.1 | 7.8 |
| 1976 | 48,706 | 14.7 | 2.8 | 5.2 | 12.6 | 14.2 | 88.4 | 8.5 |
| 1977 | 55,678 | 14.8 | 2.9 | 5.2 | 13.7 | 15.4 | 89.0 | 9.6 |
| 1978 | 64,332 | 14.9 | 3.0 | 5.3 | 13.7 | 15.5 | 88.4 | 9.8 |
| 1979 | 64,906 | 13.1 | 2.7 | 4.8 | 11.6 | 13.9 | 83.1 | 8.6 |
| 1980 | 58,613 | 10.8 | 2.2 | 4.1 | 9.2 | 12.4 | 74.5 | 7.1 |
| 1981 | 51,677 | 8.3 | 1.7 | 3.2 | 9.3 | 12.9 | 72.6 | 7.3 |
| 1982 | 31,425 | 5.1 | 1.0 | 1.9 | 7.4 | 10.6 | 69.6 | 5.5 |
| 1983 | 45,587 | 7.1 | 1.4 | 2.5 | 10.4 | 12.7 | 81.5 | 6.9 |
| 1984 | 53,602 | 7.6 | 1.5 | 2.7 | 12.1 | 14.6 | 83.3 | 8.6 |

SOURCE: Bureau of Economic Analysis, National Income and Product Accounts.

a. Excludes payments made by the Federal Reserve to the Treasury.
b. NIPA book profits with the capital consumption and inventory valuation adjustment, less Federal Reserve profits.
c. Capital income includes economic profits plus net interest paid.
d. Rate of return is defined by corporate pretax profits plus interest divided by the replacement cost of corporate capital (equipment, structures, land, and inventories) at the start of the year.

Figure 1.
## Corporate Taxes as a Percent of Total Federal Receipts

Figure 2.
## Corporate Taxes as a Percent of GNP



The reduction in profits as a share of corporate net product can be separated into two trends. Capital income (profits plus interest) as a share of corporate product has declined, and profits as a share of capital income have also declined. These two ratios are shown in the sixth and seventh columns of the table. Capital income (profits plus interest) was about 20 percent of corporate product in the early 1950s and has fallen to about 13 percent in the 1980s. (Net interest paid is included in the measure of capital income because interest reflects an alternative to dividends for distributing the income earned by corporate assets.) The decline in the share of capital income to corporate product reflects an increasing share of labor compensation: in the early 1950s, labor compensation was around 70 percent of corporate product; by the 1980s, it had crept up to about 76 percent.[38] One explanation for this trend may be the relative shift in corporate activity to more labor-intensive sectors, such as services, trades, or high technology, and away from capital-intensive manufacturing industries, such as steel or automobiles.

Along with the reduction in the share of corporate product represented by capital income, the composition of that income has shifted from profits toward interest. In recent years, net interest payments have taken a larger share of total corporate capital income. In the 1950s, the corporate sector was actually a net recipient of interest; therefore, economic profits were greater than the sector's capital income.[39] Since then, the corporate sector has become a net debtor. By 1980, the profit share of total capital income had declined to 75 percent. This change has reflected greater emphasis on debt as compared to equity in corporate financing, and higher interest rates.

The rate of return earned by corporate capital has also declined over time. As a percentage of corporate net capital stock, capital income (pretax profits plus interest) has declined since the mid-1960s.[40] The last column of Table 2 shows the changes that have occurred in the corporate rate of return over time. In the 1960s, this measure of the rate of return averaged about 11 to 14 percent; since 1973, the rate has remained below 10 percent. It appears that the assets employed in the corporate sector are

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38 The share allocated to indirect business taxes has also grown over time.

39 It should be noted that the corporate sector includes financial corporations, such as banks or insurance companies, but not the Federal Reserve.

40 Corporate net capital is a measure of the replacement-cost value of inventories and equipment plus structures (after depreciation) in the corporate sector. It also includes the value of corporate land, as estimated by the Federal Reserve.

now much less profitable on average than they were in either the 1950s or 1960s.[41] One possible explanation for these observed lower rates of return is that the capital stock data do not take account of an increasing rate of obsolescence of assets. This could have been caused by the rapid increases in energy prices in the 1970s that caused many energy-intensive assets to become obsolete overnight. Largely because of the current economic expansion, the rate rose from a low of 5.5 percent in 1982 to 8.6 percent in 1984.

## CORPORATE TAX RATES

The trend in the profits of the corporate sector indicates that even had the average tax rate on corporate income remained unchanged over the past 30 years, tax revenues as a share of GNP or net corporate product would have declined. The decline, however, has been amplified by changes made by the Congress in regard to statutory tax rates and other provisions.

### Statutory Tax Rates

In general, corporate tax rates (exclusive of excess profit levies) rose prior to the 1950s, and have since declined (see Table 3). The top statutory corporate tax rate remained 52 percent on income above $25,000 from 1952 until 1963. In the Revenue Act of 1964 (Public Law 88-272), the top rate was reduced to 50 percent in 1964 and to 48 percent in 1965. It stayed at that rate (with the exception of the Vietnam war surcharge) until 1978. The Revenue Act of 1978 (Public Law 95-600) reduced the top rate to its current level of 46 percent.

In the early years of the corporate income tax, it was applied at a flat rate to all income, although a small exemption amount was generally allowed. (See Appendix Table A-1 for a detailed description of corporate tax schedules since 1909.) In the Revenue Act of 1936 (49 Stat. 1652), the Congress adopted a graduated corporate rate structure, with rates ranging from 8 percent to 15 percent.[42] Starting in 1938, the benefit

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41 Barry P. Bosworth, in *Tax Incentives and Economic Growth* (Washington, D.C.: Brookings Institution, 1984) also reports a secular decline in the rate of return on corporate assets.

42 The excess profits taxes levied during World War I were also graduated.

of graduation was "recaptured" from firms with incomes over $25,000.[43] This was done by applying a flat rate to all taxable income, including the first $25,000, on firms with income in excess of $25,000. In order to ease the large jump in tax liabilities that a company might face by earning just over $25,000, the full flat rate was phased in over a certain income range.

In the Revenue Act of 1950 (64 Stat. 962), the recapture provision was eliminated; all firms were allowed the benefits of the graduated rate structure. The Deficit Reduction Act of 1984 has reintroduced a recapture provision by imposing a 5 percent tax on corporate income in excess of $1 million up to $1.405 million. The marginal statutory corporate tax rate is now 51 percent over that income range. Currently, taxable income of under $100,000 is taxed at graduated rates less than the top statutory rate of 46 percent. Although the graduated rates are important for small companies, most corporate income is subject to the 46 percent top statutory tax rate. In 1985, it is estimated that the total revenue loss from graduated rates will amount to $7.6 billion, or about 12 percent of corporate tax revenues.[44]

## Average Tax Rates

The average corporate tax rate has changed over time even when the tax schedule has stayed the same, because allowable tax deductions have not remained constant. Also, because historical costs are used to measure deductions for depreciation and inventories, inflation causes average tax rates to rise. The average corporate tax rates shown in Table 3 are based on corporate tax liabilities and economic profits, as measured by the Bureau of Economic Analysis, Department of Commerce. The definition of economic profits includes adjustments for depreciation and inventories that are intended to take account of much of the difference between taxable income and economic income.[45] Both depreciation and inventories are measured at replacement cost rather than by traditional historical cost methods.

Historically, during the 1950s corporations paid taxes on their income at about the top statutory rate. Prior to 1954, the average tax rate was

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43 Revenue Act of 1938 (52 Stat. 447).

44 Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 1984-1989*, 98:2 (November 9, 1984).

45 The definition of corporate profits excludes capital gains and losses; profits are based solely on ongoing economic activities.

actually higher than the normal statutory rate because of the excess profit taxes levied as a result of the Korean War. With the phase-out of these taxes and the adoption of accelerated depreciation allowances in the 1954 Internal Revenue Code, the average tax rate fell from 51 percent in 1956 to 46 percent in 1961. In 1962, with the adoption of the investment tax credit and the shorter guideline tax lives for depreciation, the average tax rate declined even further to 41 percent, even though the top corporate rate was still 52 percent. The average rate continued to fall, reaching 37 percent in 1967--11 percentage points below the top rate of 48 percent.

During the late 1960s and early 1970s, repeal of the investment tax credit and higher inflation rates, as well as the Vietnam War surcharge, raised average corporate tax rates. In 1970, the average tax rate was 44 percent. With the restoration of the ITC and adoption of the Asset Depreciation Range depreciation system in 1971, average tax rates fell back to around 40 percent during the rest of the 1970s.[46] The rate would have been significantly lower had not high rates of inflation worked to offset any advantage provided by the shorter tax lives allowed under ADR. Indeed, by 1980, inflation had pushed the average tax rate back up to to 44 percent.

Over the 1960s and 1970s, the average corporate tax remained steady at about 40 percent, with fluctuations in individual years. The adoption of the Accelerated Cost Reduction System provisions in the Economic Recovery Tax Act of 1981 (ERTA) drastically reduced the average corporate rate to 34 percent in 1981 and to 22 percent by 1984. The combination of the more rapid write-off for depreciation and the expanded investment tax credit has reduced the average tax rate to just under half the nominal statutory tax rate. Also, the reduction in inflation since 1981 has tended to reduce average corporate tax rates since depreciation deductions are worth more at lower inflation rates.

## Marginal Tax Rates

The average tax rates shown in Table 3 reflect the taxation of corporate income from all assets, regardless of when they were placed into service. Thus, the average represents an aggregation of the tax rates on all types of

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46 The high 1974 tax rate (54.2 percent) is due to $40 billion in inventory profits (primarily in the trade industries and in nondurable manufacturing) that were subject to taxation, even though they were solely the result of inflation.

TABLE 3. STATUTORY AND EFFECTIVE CORPORATE TAX RATES

| Calendar Year | Top Statutory Tax Rate | Average Tax Rate | | Effective Marginal Tax Rates [b] | | |
|---|---|---|---|---|---|---|
| | | | | All Assets | General Industrial Machinery | Industrial Structures |
| 1930 | 12.0 | 13.1 | | NA | NA | NA |
| 1935 | 15.0 | 34.2 | | NA | NA | NA |
| 1940 | 24.0 | 31.4 | | NA | NA | NA |
| 1945 | 40.0 | 54.7 | | NA | NA | NA |
| 1950 | 42.0 | 52.2 | (47.9) | NA | NA | NA |
| 1951 | 50.8 | 58.5 | (51.7) | NA | NA | NA |
| 1952 | 52.0 | 53.9 | (49.3) | NA | NA | NA |
| 1953 | 52.0 | 56.0 | (51.3) | 58.3 | 61.2 | 57.6 |
| 1954 | 52.0 | 50.3 | (50.2) | 50.7 | 52.7 | 49.9 |
| 1955 | 52.0 | 48.6 | | 51.6 | 54.2 | 50.8 |
| 1956 | 52.0 | 50.7 | | 51.7 | 54.3 | 51.0 |
| 1957 | 52.0 | 50.1 | | 52.3 | 53.9 | 51.7 |
| 1958 | 52.0 | 49.1 | | 50.5 | 51.9 | 50.2 |
| 1959 | 52.0 | 46.9 | | 51.6 | 53.2 | 51.0 |
| 1960 | 52.0 | 47.0 | | 49.9 | 51.2 | 49.6 |
| 1961 | 52.0 | 46.3 | | 49.6 | 50.9 | 49.2 |
| 1962 | 52.0 | 41.4 | | 40.9 | 38.8 | 49.3 |
| 1963 | 52.0 | 41.3 | | 40.1 | 37.5 | 48.8 |
| 1964 | 50.0 | 38.7 | | 35.1 | 31.0 | 46.9 |
| 1965 | 48.0 | 37.3 | | 33.7 | 29.5 | 45.4 |
| 1966 | 48.0 | 37.8 | | 38.4 | 37.8 | 47.3 |
| 1967 | 48.0 | 37.4 | | 38.4 | 37.9 | 47.4 |
| 1968 | 52.8[c] | 41.2 | | 44.2 | 43.4 | 53.1 |
| 1969 | 52.8[c] | 43.5 | | 51.6 | 55.1 | 56.3 |
| 1970 | 49.2[c] | 44.2 | | 50.6 | 55.4 | 53.4 |
| 1971 | 48.0 | 41.4 | | 44.2 | 45.2 | 52.3 |
| 1972 | 48.0 | 39.4 | | 37.4 | 31.9 | 52.1 |
| 1973 | 48.0 | 43.1 | | 39.3 | 34.9 | 52.9 |
| 1974 | 48.0 | 54.2 | | 42.2 | 39.4 | 54.3 |
| 1975 | 48.0 | 41.4 | | 37.1 | 30.0 | 54.8 |
| 1976 | 48.0 | 41.3 | | 34.0 | 24.0 | 53.8 |
| 1977 | 48.0 | 38.1 | | 35.5 | 26.8 | 54.2 |
| 1978 | 48.0 | 38.8 | | 35.7 | 27.2 | 54.4 |

(Continued)

TABLE 3. (Continued)

| Calendar Year | Top Statutory Tax Rate | Average Tax Rate | Effective Marginal Tax Rates [b] | | |
|---|---|---|---|---|---|
| | | | All Assets | General Industrial Machinery | Industrial Structures |
| 1979 | 46.0 | 41.9 | 34.5 | 25.7 | 53.0 |
| 1980 | 46.0 | 43.8 | 34.8 | 24.4 | 53.3 |
| 1981 | 46.0 | 34.1 | 20.0 | 0.8 | 42.0 |
| 1982 | 46.0 | 25.9 | 15.1 | -9.2 | 40.0 |
| 1983 | 46.0 | 24.5 | 18.6 | 2.1 | 38.9 |
| 1984 | 46.0 | 21.9 | 16.1 | -2.2 | 37.5 |
| 1985 | 46.0 | NA | 16.4 | -4.5 | 39.7 |

SOURCE: Congressional Budget Office.

a. The average tax rate is the ratio of domestic corporate tax liabilities to domestic corporate profits (NIPA basis) with the capital consumption and inventory valuation adjustments, less profits earned by the Federal Reserve. The rates in parentheses are those computed without the excess profit taxes paid during the Korean War.

b. Marginal tax rates are based on the following assumptions: assets are financed 100 percent by equity, corporations earn a 4 percent real after-tax return, and all deductions or credits can be used in the year earned. Expected inflation in each year is calculated as a function of prior inflation rates.

c. Includes Vietnam War Surcharge of 10 percent in 1968 and 1969 and 2.5 percent in 1970.

corporate investment already in place.[47] Economists have argued, however, that what is important for new investment decisions is the anticipated effective tax rate on new assets. Firms base their investment decisions on the expected post-tax rate of return of their new assets, not on the current tax rate levied on existing assets. In analyzing tax incentives (or disincentives) for investment, it is the "marginal" tax rate on new investment that is

47 In general, the tax rate on individual assets can vary depending on when they were purchased and what investment credit or accelerated depreciation they are allowed.

relevant. (The differences between statutory, average, and marginal effective tax rates are explained in the accompanying box.)

The marginal effective tax rate estimates shown in Table 3 and Figure 3 are based solely on equity-financed fixed assets (equipment and structures), taking account only of the tax rules for depreciation and the investment tax credit.[48] They are calculations of expected marginal tax rates, given certain assumptions about future inflation, interest rates, and economic depreciation of assets. The calculations also assume that all deductions and credits can be used on a current basis and that the tax law remains unchanged over the life of the investment. The marginal rate calculations are sensitive to these assumptions; alternative assumptions might yield quite different tax rate levels.

The marginal tax rates directly reflect the large changes in tax law and in inflation rates over the past 30 years. As can be seen, marginal tax rates have risen with inflation, since the value of depreciation allowances has fallen during periods of high inflation. There is a strong correspondence in the trends between marginal and average tax rates, although the marginal rates are much more sensitive to tax law changes. This is because most tax law changes only apply to new investment, whereas average tax rates are based on all assets in place.

As with average tax rates, marginal tax rates on new equity-financed investment in the 1950s were about the top statutory rate because depreciation allowances were sufficient to cover the cost of real economic depreciation. The adoption of the ITC and the guideline asset lives in 1962 reduced tax rates to well below the statutory rate. Again, repeal of the ITC and higher expected inflation raised marginal tax rates during the Vietnam War. In 1972, the reinstituted ITC and the ADR depreciation system reduced the marginal effective tax rate on all assets to between 35 percent and 40 percent. ERTA radically lowered marginal effective tax rates to a low of 15 percent in 1982, or only about one-third of the top statutory tax rate. The changes made by the Tax Equity and Fiscal Responsibility Act (TEFRA) in 1982 were sufficient to raise the marginal effective rate back up to 19 percent in 1983, but it remains well below the statutory rate. The provision for longer tax lives for real property in the Deficit Reduction Act will raise it from 16.1 percent in 1984 to 16.4 percent in 1985. The tax increases in TEFRA and DEFRA appear to be quite small in this table because they have

48 It ignores other assets, such as land or inventories, and other tax rules, such as those related to depletion or minimum taxes. Tax rates are estimated on an individual asset basis and are aggregated in calculating the overall marginal tax rate according to the composition of the capital stock.

## WHICH TAX RATE?

Tax rates can be measured in several different ways. This box describes three concepts that are frequently used in discussions of corporate taxation.

**The Statutory Tax Rate**. This rate is set in legislation and applies to a taxpayer's taxable income. (Currently, the top statutory tax rate for corporations is 46 percent.) Taxable income is defined by the tax statutes and regulations. As increments to taxable income are taxed at 46 percent (for firms with taxable income in excess of $100,000), the top statutory tax rate may sometimes be referred to as the marginal tax rate--that is, the rate at which a marginal dollar of income is taxed.

**The Average Tax Rate**. This is equal to a firm's taxes divided by its income. For the corporate sector as a whole, it is total corporate taxes divided by total corporate income. The average tax rate is generally calculated on an annual basis, and income is defined as economic income rather than taxable income. Thus, the average tax rate is the relationship between actual taxes paid and "true" profits. It would be quite similar to the statutory tax rate if taxes were levied on real economic income. Because taxable income may differ significantly from real economic income (as a result of special deductions or inflationary gains), the average rate may be much different from the statutory rate. Also, tax credits lower taxes paid and average tax rates without affecting the statutory tax rate.

**The Effective Marginal Tax Rate**. This is a calculation of the tax rate that a firm could expect to pay over the lifetime of a new investment. It takes into account all the taxes that a firm would expect to pay on the income from an asset, as well as all the tax credits and depreciation deductions that accompany it. As income taxes and deductions occur in future years, they are adjusted to take into account the time value of money--that is, they are discounted back to the present. In technical terms, the rate is the ratio of the present value of taxes to the present value of income from a particular asset. Economists pay attention to marginal effective tax rates (as opposed to average tax rates) because they represent the tax rate that firms face when considering new investments and are therefore the rates on which economic decisions are based. As old investments are basically sunk costs, changes in their taxation are not likely to have any effect on new investment; only if tax changes affect new investment will new capital plans be changed. The effective marginal tax rate is <u>not</u> directly comparable with the average tax rate, because it does not take account of many code provisions, or all corporate assets, or the tax effects of debt finance. It is most useful in comparing depreciation/credit systems across assets and over time.

Figure 3.
## Corporate Marginal Effective Tax Rates

been largely offset by tax reductions from lowered inflationary expectations that have occurred since 1981. In fact, if 1981 law were in effect in 1985, the tax rate on all assets would be 8 percent instead of 16 percent.

Effective marginal tax rates are also shown in Table 3 and Figure 3 for two specific asset classes--general industrial machinery and industrial structures. Prior to the introduction of the investment tax credit in 1962, the marginal effective tax rate on the equipment class was higher than that on industrial structures, and also sometimes higher than the statutory tax rate. The rate on industrial structures was about the same level as the statutory tax rate. The adoption of the investment credit lowered the industrial machinery tax rate to 39 percent; repeal of the basis adjustment in 1964 further lowered the tax rate on machinery to about 31 percent. The suspension of the investment tax credit in the late 1960s, however, substantially raised the rate on machinery. The reintroduction of the credit in the 1970s again lowered the tax rate on machinery to well below the rate on structures. Although the credit was expanded in the 1970s from 7 percent to 10 percent, the rise in the inflation rate tended to offset this effect, yielding a rate of around 25 percent by the end of the decade. Throughout the 1953 to 1980 period, the effective marginal tax rate on structures remained roughly 50 percent.

The enactment of ERTA reduced the tax rate on industrial structures to about 40 percent and the rate on general industrial machinery to -9 percent in 1982. (The negative tax rate implies that the asset earned a higher after-tax return than if no tax had existed.) The changes in TEFRA raised the tax rate on machinery to above zero in 1983, but the decline in expected inflation reduced it again to below zero in 1984. The lower expected inflation rate also reduced the rate on industrial structures to 37.5 percent in 1984, but the changes made by the Deficit Reduction Act in 1984 have raised the tax rate back up to 40 percent. These trends indicate that prior to 1962 the tax code was fairly neutral between general industrial machinery and industrial structures, but that since the adoption and expansion of investment incentives for machinery and equipment over the last two decades, the tax code has been more favorable to corporate investments in machinery than structures.

The tax rate calculations in Table 3 show that the burden of the corporate tax has significantly declined since the 1950s. Moreover, effective tax rates on new equity-financed investment are now well below the statutory tax rate of 46 percent. The accelerated depreciation provisions and the investment tax credit enacted by ERTA have drastically reduced the effective tax burden on corporate income--even when account is taken of the recent provisions contained in TEFRA. As these provisions also apply to noncorporate businesses, the overall taxation of depreciable capital has fallen substantially in recent years.

CHAPTER III

# THE CORPORATE TAX AS AN INSTITUTION

The corporate income tax has been in existence since 1909, and it will collect over $60 billion in 1985. But there has always been considerable debate as to the rationale for taxing corporate income. Critics point out that the cash used to pay corporate taxes must come out of somebody's pocket: from the stockholder who is paid a lower dividend, from the employee who receives a smaller paycheck, or from the consumer who pays higher prices. In short, "people pay taxes, not corporations." Some argue accordingly that the tax should be abolished and that individuals should be taxed directly and rationally, rather than indirectly through the corporation. Nevertheless, proponents of the tax support its continuation on several grounds.

## PRACTICAL JUSTIFICATIONS FOR THE CORPORATE INCOME TAX

Probably the most basic justification for taxing corporate income is pragmatic. The corporate tax collects a significant, albeit declining, share of federal revenues. To the extent that the tax is further reduced, the revenue shortfall must be replaced by other taxes, reduced expenditures, or increased borrowing. Since any change in the corporate tax must be balanced against such unpopular alternatives, the tax may be viewed as a compromise between competing economic interests.

The tax is well established in practice, and there is some truth to the maxim that "an old tax is a good tax." Over time, people adjust to an existing tax. In the case of the corporate tax, the prices of existing stock shares take into account the effect of the tax on future profits so that any reduction in the tax will result in windfall gains to present stockholders, while an increase will result in windfall losses. Only the present stockholders will be affected by unforeseen changes in the tax; subsequent share-

holders will escape the changes.[1] A reduction in the tax may, however, encourage new stock issues to finance projects that become profitable under the lower tax, and vice versa.

Another practical consideration is that the corporate income tax provides a necessary complement to the personal income tax. Without a separate tax on corporate income, shareholders would be able to accumulate income tax-free in corporations because the personal tax does not tax retained earnings. While undistributed earnings may be subject to personal taxation when gains are realized, they generally receive preferential tax treatment under the special provisions for capital gains.[2] To the extent that corporations retain earnings, shareholders would thus be able to defer or completely avoid personal income taxation on corporate profits. But this holds only for undistributed earnings; it does not apply to earnings paid as dividends, because dividends are already taxed in full by the individual income tax. In theory, the two tax systems could be integrated so that all corporate income was only taxed once.

The corporate income tax is also a relatively efficient way for the government to collect revenues. Large corporations generally maintain sophisticated accounting systems, minimizing the audit burden per dollar of revenue. Moreover, because a large amount of revenue is collected from relatively few taxpaying entities, the tax is relatively easy for the IRS to administer. Under a personal tax system that undertook to tax undistributed profits, ensuring that all taxpayers reported their full portion of undistributed (as well as distributed) profits would impose significant compliance costs.

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1 In the stock market, investors are willing to purchase shares at a price that yields a certain after-tax return. If the corporate tax is lowered, investors will be willing to pay more for corporate equities so that the return relative to the new price remains the same. Thus, sellers could realize a capital gain as prices rose, but new owners would not receive a higher post-tax rate of return.

2 Only 40 percent of the capital gain on the sale of stock (held over six months) is included in income. In addition, capital gains (unrealized) transferred as a result of the stockholder's death completely escape personal taxation. This is because the heir's base price for any corporate stock for tax purposes is its market value at the time of transfer and not its original acquisition cost.

## OTHER JUSTIFICATIONS

Aside from these practical reasons, other substantive rationales have been offered in defense of the corporate tax.

### Payment for Incorporation

Perhaps the most common argument heard in favor of the corporate income tax is that it represents a payment for the privileges of incorporation. Indeed, the tax was upheld in 1911 by the Supreme Court (in Flint v. Stone Tracy Co.) as "an excise upon the particular privilege of doing business in a corporate capacity." The corporate form of business enjoys a number of advantages that include perpetual life, limited liability of shareholders, and the ability to raise large amounts of financial capital. Perhaps most important is the limited liability rule that allows shares to be traded on the stock market.[3] To some extent, the value of these benefits is demonstrated by the willingness of investors to organize corporations, to elect to be taxed under the corporate income tax, and to subject their income to "double" taxation even though noncorporate forms of organization are available.[4] The corporate form, moreover, allows investors to diversify risks easily and enables companies to accumulate the capital necessary to exploit fully economies of scale.

If this "benefit" theory is to be accepted as justifying the current tax, one must assume that corporate profits represent the value of the privileges conferred upon the organization by the government. This seems problematic: all corporations are granted the same set of privileges, but their profits

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3 This rule limits the stockholder's financial liability to the individual's stake in the corporation. Stockholders are not liable for any obligations in excess of their invested capital.

4 For high-tax-bracket individuals, the corporate form of organization may actually lead to a lower combined tax rate. That is, under certain circumstances, the combination of the corporate tax rate and the reduced rate on capital gains (from retained corporate earnings) may actually be lower than the regular personal income tax rate alone. See Martin Feldstein and Joel Slemrod, "Personal Taxation, Portfolio Choice, and the Effect of the Corporate Income Tax," *Journal of Political Economy*, vol. 88 (October 1980), pp. 854-866. This possibility is now probably much less since the top individual tax rate has been reduced from 70 percent (when the article was written) to the current 50 percent rate.

and taxes differ. While the benefit theory might be used to justify a uniform annual fee for all corporations, few economists accept it alone as an adequate rationale for a substantial tax on corporate profits.[5]

## Separate Legal Entity

Another justification of the corporate tax is that corporations are legally "persons" and should be taxed as such. This argument rejects the view that the corporation is simply an entity that is used to earn income for its shareholders.[6] In corporations of any size, it is the managers rather than the stockholders who exercise effective control. Thus, the corporate tax is seen not so much the double taxation of stockholder income, but as the "separate taxation of the incomes of two related economic entities."[7] This argument is used to defend double taxation of corporate income distributed in dividends, as well as the exclusion of retained earnings from stockholders' income.

The economic and political power derived from corporate wealth in and of itself is also held by some to justify the taxation of corporate earnings.[8] On this ground, the corporate tax is viewed as a means of limiting the power that corporations are able to exercise in society.[9]

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5 For a discussion, see Richard Goode, *The Corporation Income Tax* (New York: John Wiley & Sons, 1951); and Joseph A. Pechman, *Federal Tax Policy*, 4th ed. (Washington, D.C.: Brookings Institution, 1983).

6 This view is generally referred to as the "conduit" view of the corporation. Stanley S. Surrey, in "Reflections on Integration of Corporation and Individual Income Taxes," *National Tax Journal*, vol. 28 (September 1975), pp. 335-340, describes the conduit view of the corporation as a bit of "tax theology" purveyed by economists.

7 Goode, *The Corporation Income Tax*, p. 25.

8 For example, in 1981-1982, corporate political action committees directly donated $18.8 million to Congressional campaigns (about 30 percent of the total contributed by political action committees). *Statistical Abstract of the United States, 1984*, p. 268.

9 Pechman, *Federal Tax Policy*, p. 130.

## Compensation for Social Costs

The separate tax on corporate business is also justified as compensation for the social costs that corporate activities impose on communities. Corporations benefit from publicly provided services, such as roads, police, public education, and health services, not all of which are covered by the local property taxes corporations pay. The productive activities of many corporations also pollute the air or water, thereby imposing control costs on other users. In a sense, the tax may be viewed as a form of payment for financing the public goods and services that corporations consume.

On the other hand, the tax does not directly reflect the social costs of doing business, since a corporation's income has no direct relationship to its consumption of public services or to the costs it imposes on others.[10] In addition, it seems inconsistent to charge corporations for the consumption of public goods when noncorporate businesses reap some of the same advantages but are not subject to the corporate tax.

## Ability to Pay

Finally, the corporate income tax has sometimes been defended as a supplement to the personal income tax that increases the general progressivity of the federal tax system. The combination of the personal and corporate tax systems acts in a rough way to raise the tax burden on people having the highest incomes, since corporate ownership is concentrated in the hands of those at the upper end of the income scale. Although the tax may impose greater burdens on high-income taxpayers, it does this imprecisely because it imposes the same tax on all shareholders, wealthy and not-so-wealthy alike.

But this argument is true only if stockholders bear the burden of the tax. The tax may instead be shifted onto workers or consumers through lower wages or higher prices. The incidence of the tax--that is, where the ultimate burden rests--has been the subject of much controversy. The diverse views on this topic are discussed in detail in Chapter IV.

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10 For example, a steel company may impose significant external costs on society, but pay little in tax; a computer company may pay high taxes, but impose minimal social costs.

## RECENT TAX RETURN DATA

The latest detailed Internal Revenue Service data show that regular corporations paid taxes of $58.3 billion on their 1981 income.[11] This burden was spread unevenly over returns, since corporate income is concentrated among relatively few large firms.

The tax data show that the corporate sector is a wide mixture of small and large, and of taxable and nontaxable, companies. Corporations filed 2.8 million tax returns in 1981, of which only 1.6 million (57 percent) reported positive taxable income. The large number that reported no taxable income did so for a number of reasons, among which were unfavorable business conditions in certain industries; start-up costs for new companies; bad management decisions; loss carryovers; and tax preferences that sheltered an economic profit. The importance of each of these factors cannot be determined from the published tax return data.

The distribution of tax returns among various asset classes in 1981 is shown in Table 4. Of the 2.8 million returns, nearly 98 percent were filed by companies with assets of less than $5 million. These corporations accounted for 9 percent of total assets. Only 3,141 returns were filed by companies with assets in excess of $250 million; of these, 1,765 (56 percent) reported positive taxable income while the others reported tax losses.

Although the firms in the largest asset class ($250 million and above) filed only 0.1 percent of the returns, they held 72 percent of the assets, received 52 percent of the gross receipts, and reported 60 percent of the taxable income of all corporations. These firms also paid just about 50 percent of the total tax owed by the corporate sector. These statistics indicate that a small minority of firms are responsible for most of the activities in the corporate sector and incur most of the associated tax liabilities. On a per-return basis, firms in the largest asset class paid about $9.6 million in tax, compared to only $4 thousand in the smallest asset class. Among all asset classes, 54 companies each paid taxes in excess of $100 million, totaling $13.5 billion or 23 percent of total corporate revenues.

Tax losses have an uncertain effect on investment incentives, as is also shown by the 1981 tax return data. In that year, corporations earned $26 billion in investment tax credits, but were able to use only $19 billion, while $7 billion (27 percent) had to be carried over; 27 percent of the

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11 Department of the Treasury, Internal Revenue Service, *Statistics of Income, Corporation Income Tax Returns: 1981* (1984).

research and experimentation tax credits also had to be carried over. Although this problem was no doubt greater in 1981 because of adverse economic conditions and the effect of the Economic Recovery Tax Act, it also existed in more prosperous years. For example, in 1979, 23 percent of the investment tax credits earned that year had to be carried over. The fact that so many credits are carried over means that the incentives they provide are significantly less powerful than if they could be used immediately.

TABLE 4. TAX RETURN DATA FOR CORPORATIONS, 1981

| Item | Size of Total Assets (In millions of dollars) | | | | | |
|---|---|---|---|---|---|---|
| | Under $5 | $5-$25 | $25-$100 | $100-$250 | $250 and Over | All Classes |
| Number of Returns | | | | | | |
| Thousands | 2,751.0 | 41.2 | 13.6 | 3.4 | 3.1 | 2,812.4 |
| Percent | 97.82 | 1.46 | 0.48 | 0.12 | 0.11 | 100.0 |
| Assets | | | | | | |
| $ Billion | 732.9 | 440.4 | 668.3 | 540.4 | 6,165.2 | 8,547.2 |
| Percent | 8.57 | 5.15 | 7.82 | 6.32 | 72.13 | 100.0 |
| Gross Receipts | | | | | | |
| $ Billion | 1,856.4 | 622.8 | 489.6 | 381.5 | 3,675.1 | 7,025.4 |
| Percent | 26.42 | 8.86 | 6.97 | 5.43 | 52.31 | 100.0 |
| Taxable Income | | | | | | |
| $ Billion | 45.3 | 20.2 | 17.8 | 12.9 | 145.3 | 241.5 |
| Percent | 18.75 | 8.37 | 7.38 | 5.33 | 60.17 | 100.0 |
| Tax | | | | | | |
| $ Billion | 11.0 | 7.4 | 6.2 | 4.3 | 29.5 | 58.4 |
| Percent | 18.77 | 12.71 | 10.66 | 7.40 | 50.47 | 100.0 |

SOURCE: Department of the Treasury, Internal Revenue Service, *Statistics of Income, Corporation Income Tax Returns: 1981* (1984).

CHAPTER IV

# ECONOMIC EVALUATION OF THE CORPORATE TAX

One of the most important questions in evaluating the economic effects of the corporate income tax is: who actually pays the tax? Is it paid by stockholders, or is it shifted onto workers or consumers? The answer to this question has a major bearing on the economic evaluation of the tax. For example, the tax may be viewed as progressive or regressive depending on whether it is ultimately paid by stockholders or is shifted onto workers.

## WHO PAYS THE CORPORATE TAX?

Although corporations write the checks to the Internal Revenue Service, this does not mean that they bear the whole economic burden of the income tax. One common view is that stockholders, in their capacity as owners, bear the greatest part of the tax. Others conclude that the owners of all capital as a class, not simply stockholders, pay the tax in its final form. Still another view is that labor bears the tax to the extent that wages are reduced. A consensus has not been reached about how the tax is borne. Indeed, one major objection to the corporate tax is that its burden is not explicit and depends on economic effects that are not clearly understood. This is in contrast to personal income or sales taxes, the burdens of which seem to be more direct and readily observable.

### The Short and the Long Run

Much depends on the time horizon. The incidence of the tax can be analyzed with respect to its short-run or long-run effects. In the short run, economic theory holds that an increase in the corporate tax is paid by the corporation. If a firm has done its best to make a profit, the tax reduces the firm's after-tax earnings, but does not affect its output or prices in the short run (since they presumably have already been set at profit-maximizing levels). Firms cannot readily shift their investment into other activities that are taxed less, because the capital stock of a firm is fixed in the short run. As owners of the corporation, the stockholders bear the full tax (or tax

increase) through reduced dividends or lower appreciation on their stocks. Once the tax has been imposed, share prices adjust downward to reflect the lower profitability (after tax) of the corporate investments.[1] But to the extent that corporations are not pure profit maximizers and have power to determine market prices, one can argue that they may be able to raise their prices (reducing output) and shift part of the tax burden onto consumers.

The long-run effects of the tax (or a change in the tax) are likely to be considerably different than the short-run effects. One milestone in the theory of corporate tax incidence was the model developed by Arnold Harberger, suggesting that all owners of capital bear virtually all of the tax in the long run.[2] For purposes of his analysis, Harberger divided the output of the economy into two distinct sectors: the corporate and the noncorporate. Because a corporate tax reduces the after-tax rate of return in the corporate sector, investors have a disincentive to invest in corporate activities. Investment shifts out of the corporate sector into the noncorporate sector until after-tax returns are equalized (after adjusting for other factors, such as risk or liquidity) across sectors. This equalization comes about as withdrawals of capital from the corporate sector (or a slowing in its growth) increase the pretax return in this sector, and as additional investment in the noncorporate sector decreases returns earned there. These adjustments serve to decrease corporate output, thereby raising prices (and pretax returns), and to increase noncorporate output, thereby decreasing prices (and returns) in that sector.[3] The shifting of

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1 The current shareholders suffer a capital loss, but future owners do not. Because shares sell at a discount (to reflect the extra tax) new stockholders bear none of the tax, except for future increases. Even if the tax is borne by the owners of corporate stock, they pay it when the tax is imposed (and subsequently raised).

2 Depending on the degree of substitutability between capital and labor in the corporate and noncorporate sectors, owners of capital may bear slightly more or less than 100 percent of the tax, while workers may experience a slight increase or decrease in their wages. For a compilation of his essays on corporate tax incidence, see Arnold C. Harberger, *Taxation and Welfare* (Chicago: University of Chicago Press, 1974). Recently, he has modified his analysis to take account of international capital flows.

3 The Harberger model assumes that corporate and noncorporate output are not perfectly substitutable for one another. Alternatively, certain attributes of the corporate form of business organization make it difficult for noncorporate firms to produce the same kinds of output as corporations, for example automobiles or blast furnaces.

capital from one sector to the other results in an overall reduction in the return to capital. As it takes time for these adjustments to occur, changes in the corporate tax first affect only corporate stockholders, but eventually affect all owners of noncorporate capital by reducing returns on their investments. According to Harberger, in the long run both corporate and noncorporate investors have their returns lowered by the corporate tax.

The mechanics of this adjustment process can be shown by an example. Suppose that, prior to the imposition of a corporate tax, both corporate and noncorporate capital earn a return of 10 percent. If a 50 percent tax is imposed on corporate income, the return on existing corporate capital will fall to 5 percent after tax; the return on noncorporate capital will be unchanged. Because of the new differential in rates of return, investment will gradually flow from corporate to noncorporate uses. Because of declining returns to capital, pretax returns in the noncorporate sector will fall as capital flows in, and pretax corporate returns will rise as capital flows out. An equilibrium will be restored when after-tax returns in each sector are equal. For example, after full adjustment, the corporate sector might earn a 15 percent pretax return, resulting in a 7.5 percent after-tax return, and the noncorporate sector would then also earn a 7.5 percent return.[4] In such a scenario, all owners of capital will bear the corporate tax; both corporate and noncorporate investors will have their after-tax returns reduced by 25 percent (2.5 percentage points).

Some economists reject Harberger's analytical division of American business into two exclusive sectors--a noncorporate sector (agriculture, real estate, oil and gas extraction) and a corporate sector (all other industries).[5] Although corporate or unincorporated businesses dominate some industry classes, they argue that the mere observation that both exist in all industries is sufficient to refute the simple two-sector analysis.[6] They argue that the corporate tax does not shift investment from one sector to

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4 This simple model ignores effects of the personal tax on business-related income.

5 Liam P. Ebrill and David G. Hartman, "The Corporate Income Tax, Entrepreneurship, and the Noncorporate Sector," *Public Finance Quarterly*, vol. 11 (October 1983), pp. 419-436.

6 Because output prices must be the same for all firms, regardless of their form of legal organization, the corporate sector would cease to exist if it charged higher prices for the same output. Corporations could not recoup their corporate tax through higher prices unless there were some countervailing advantages to the corporate form of organization.

another, but merely imposes a tax on the advantages of the corporate form of business organization.[7] Rather than seeing certain industries as corporate or noncorporate, they view each industry as a composite of corporate and noncorporate firms. In their analysis, the effect of the corporate tax is to shift the share of output produced within each industry toward unincorporated firms. This adjustment tends to lower the return to capital in each industry for both corporate and noncorporate firms, thereby resulting in the same effect as in the Harberger model: a general tax on all capital income.

In both analyses, the tax that is remitted by corporations is borne by all owners of capital, not just stockholders.[8] Since investors can move their capital freely among alternative firms and assets--especially in the long run--they will never be willing to accept a lower after-tax return in the corporate sector when higher returns are available elsewhere.[9] This implies that the corporate tax cannot drive the after-tax return on corporate assets down below the after-tax returns available in other sectors.

One of the assumptions underlying the Harberger model is that the amount of capital or savings is fixed. In a dynamic economy, however, the overall level of investment and savings in the economy is likely to react to changes in the overall rate of return to capital. If investment rates decline when the after-tax rate of return falls, a large share of the corporate tax may be borne by workers because worker productivity is lower when the capital stock is smaller in size, other things being equal.[10] (Labor

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7 The advantages of incorporation include access to more efficient capital markets where investor liquidity and a potential for risk diversification provide wider investment opportunities. Further, the advantages of incorporation are likely to be directly related to firm size, thereby enabling corporations to exploit more fully any economies of scale. Investors thus may be willing to accept lower after-tax returns on corporate investments than on noncorporate investments.

8 Both Harberger and, in a later extension of the Harberger model, John B. Shoven conclude that capitalists as a class bear nearly all of the corporate tax (see John B. Shoven, "The Incidence and Efficiency Effects of Taxes on Income from Capital," *Journal of Political Economy*, vol. 84 (December 1976), pp. 1261-1283.

9 This is after returns have been adjusted for the different characteristics of the assets, such as risk and liquidity.

10 Martin Feldstein argues that "quite plausible assumptions about savings behavior imply that the differential incidence of a profits tax (in place of a payroll

productivity is lower because workers have fewer, or older, or less sophisticated tools, machinery, and equipment with which to work.) Since wage rates are linked to worker productivity, workers bear a portion of the corporate tax burden in direct relation to the reduction in capital stock that results from the corporate tax.

Effects of International Capital Flows

In fact, if international capital flows are considered, it may be that the tax is almost completely shifted onto labor. One potential effect of an increase in the corporate tax is to shift investment not only out of the corporate sector, but out of the country as well. This could occur if direct foreign investment in the United States was reduced, or if U.S. investors tended to pursue more opportunities abroad. To the extent that capital can freely flow across international boundaries, and that the world rate of return is basically fixed, U.S. capitalists could avoid most of a change in the corporate tax by shifting their investment abroad. The full effect of this shift, in the long run, would be to reduce the growth of the capital stock in the United States, thereby lowering real wage growth in this country and placing the full burden of the tax on labor. In this context, the corporate tax might be viewed as equivalent in incidence to a flat-rate payroll tax.

The international ramifications from taxing corporate income can be illustrated by reference to state corporate income taxes. If California raises its corporate income tax, less investment is likely to take place there, and workers will have the option of being paid less or moving out of the state. California landowners may also bear part of the tax, since any tax that makes the state less attractive for business will tend to hurt real estate values. Because capital is relatively mobile (certainly in the long run), capital owners are able to avoid an increase in California's corporate income taxes by shifting investment to other states. Likewise, to the extent that capital is free to cross international boundaries, U.S. capital owners may be able to escape the U.S. corporate income tax altogether, passing it onto labor and landowners.

In a reevaluation of his earlier analysis, Harberger has recently argued that two basic implications of assuming more open world capital markets are:

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tax) is divided between capital and labor with capital bearing the larger share, but labor still bearing a significant portion (about 35 percent)," in *Capital Taxation* (Cambridge, Mass.: Harvard University Press, 1983), p. 409.

- If all nations raise and lower their corporate (or capital) tax rates together, the tax burden is likely to fall mainly on all capital owners. This is because all major trading nations, taken together, can basically be thought of as a substantially closed economy. To the extent that the total supply of capital is affected by changes in worldwide capital taxes, however, labor may bear part of the burden.

- If only one nation (the United States for example) changes its corporate income tax, the burden of this change is likely to be absorbed primarily by workers. For example, an increase in the U.S. tax would shift investment abroad, thereby depressing U.S. real wages; alternatively, lowering the corporate tax would attract investment from abroad, increasing the capital stock and serving to raise labor productivity and wages. In the short run, a reduction in corporate taxes provides an increase in the after-tax rate of return for U.S. investors; in the long run, an increase in the capital stock works to reduce the after-tax return to its original level.[11]

The foregoing analysis is based on the assumption that world capital markets are reasonably open, thereby allowing capital to flow freely among countries in search of the highest return. This assumption has been challenged by those who argue that capital is not, in fact, very mobile among countries and that it is reasonable to ignore international capital mobility in the study of tax incidence.[12] If so, the long-run incidence of the corporate income tax would depend on the sensitivity of domestic savings to the rate of return; the behavior of foreign investors could be ignored.

Recent empirical evidence indicates that the behavior of world capital markets is somewhere in between the two extremes of perfect capital mobility and no international capital mobility. For example, one study estimates

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11 Arnold C. Harberger, "The State of the Corporate Income Tax: Who Pays It? Should It Be Repealed?," in Charls E. Walker and Mark A. Bloomfield, eds., *New Directions in Federal Tax Policy for the 1980s* (Cambridge, Mass.: Ballinger Publishing, 1983), pp. 161-181.

12 Martin Feldstein and Charles Horioka, "Domestic Savings and International Capital Flows," *Economic Journal*, vol. 90 (June 1980), p. 328; and Martin Feldstein, "Domestic Saving and International Capital Flows in the Long and Short Run," *European Economic Review*, vol. 21 (March/April 1983), pp. 129-151.

that a 1 percent reduction in U.S. capital income taxes increases net foreign investment in the United States by about 1 percent.[13] This suggests that capital movements are moderately responsive to changes in tax rates and that capital owners may therefore be able to escape part of the tax by investing abroad, although the effect is not so large as to allow them to escape it entirely. Since the United States owns so much of the world's capital, it seems plausible that an increase in the corporate tax rate in the United States would result in some capital outflow, but that this outflow would be limited by the resulting decline in world rates of return.

The effect of international capital flows on the incidence of the current corporate income tax might be summed up as follows: U.S. capital owners escape part of the tax by shifting investment abroad; this reduces worldwide returns to capital so that the burden is imposed on all capital owners, foreign and domestic. That is, the tax burden is shifted in part to foreign owners of capital. To the extent that worldwide saving is responsive to the new after-tax return, the worldwide capital stock will decline, and labor worldwide will bear part of the tax through lower real wages. U.S. landowners may also bear part of the tax if productive activities are shifted abroad.

These disagreements and uncertainties about the actual incidence of the corporate tax are not likely to be resolved in the near future, for the long-run effects of the tax are complex and difficult to measure. It probably suffices to say that short-run effects are likely to be primarily felt by stockholders, but that over time investment patterns will adjust to shift the tax onto other capital owners and labor. Because the long-run incidence of the tax is so difficult to determine, it has been assailed as a less than perfect levy--one of the attributes of a good tax being that its burden is explicit and apparent to all taxpayers. As one writer suggests, uncertainty about the incidence of the corporate tax may have certain noneconomic attractions, since "politicians may be able to sell a corporate tax increase simultaneously to workers and consumers who think it would mainly burden capitalists and businessmen who think it would mainly burden consumers."[14]

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13 David G. Hartman, "Tax Policy and Foreign Direct Investment in the United States," *National Tax Journal*, vol. 37 (December 1984), pp. 475-487.

14 George F. Break, "The Incidence and Economic Effects of Taxation," in Alan S. Blinder and others, *The Economics of Public Finance* (Washington, D.C.: Brookings Institution, 1974), p. 154.

## ECONOMIC EVALUATION OF THE CURRENT SYSTEM

The present corporate tax system, and any proposed change in it, can be analyzed with respect to three basic economic criteria: equity, efficiency, and simplicity. The equity of a tax is generally gauged according to whether it is fair among taxpayers with the same economic status (horizontal equity), and appropriately distinguishes among taxpayers of different economic status (vertical equity). The efficiency of a tax has to do with its effects on the work, saving, and investment behavior of individuals or firms. Simplicity refers to the burdens on taxpayers of understanding and complying with the tax law, and to its administrative costs.

### Equity

A tax is considered horizontally equitable if taxpayers in similar economic circumstances pay the same tax. This suggests that two stockholders with the same income should be taxed at the same rate, all else being equal. Vertical equity concerns the appropriate tax treatment of individuals with different incomes. A progressive tax imposes burdens that increase (as a percentage of income) as income rises.[15] Conversely, the burdens of a regressive tax decline as income rises. With a strictly proportional tax, all taxpayers pay the same percentage of their income. The current individual income tax system is designed to be progressive, but it is often criticized as being either too progressive or not progressive enough.[16]

Vertical Equity. The progressivity of the corporate tax depends on who ultimately pays it. Table 5 presents the distribution of various types of income across income classes, as defined by adjusted gross income. If one assumes that the tax is paid by stockholders, through lower dividends or capital gains, then the tax appears highly progressive given the concentration of share ownership in the higher income classes. This may be true in the short run, but, as the above discussion pointed out, it is not at all clear where the long-run burden of the tax falls.

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15 Traditionally, income has been the standard used to gauge the equity of a tax. The equity of a tax might also be measured against the standard of consumption.

16 For an exposition of the theories used to justify progressive taxation, see Walter J. Blum and Harry Kalven, Jr., *The Uneasy Case for Progressive Taxation* (Chicago: University of Chicago Press, 1953).

TABLE 5. DISTRIBUTION OF SOURCES OF INCOME ACROSS INCOME CLASSES (In percents)

| AGI Class (thousands of dollars) | Adjusted Gross Income | Wages and Salaries | Capital Income | | | |
|---|---|---|---|---|---|---|
| | | | Dividends | Net Capital Gains[a] | Taxable Interest | Pension and Annuity Income[b] |
| 0 - 3 | 1.1 | 2.9 | 3.1 | 7.6 | 4.6 | 3.2 |
| 5 - 10 | 6.9 | 6.6 | 4.3 | 2.2 | 9.8 | 10.6 |
| 10 - 15 | 9.6 | 9.3 | 4.9 | 3.2 | 11.4 | 13.7 |
| 15 - 20 | 9.9 | 9.9 | 5.2 | 2.5 | 9.7 | 13.9 |
| 20 - 25 | 10.7 | 11.0 | 4.9 | 2.5 | 9.3 | 10.9 |
| 25 - 30 | 11.3 | 11.9 | 5.5 | 3.3 | 8.2 | 10.4 |
| 30 - 40 | 18.4 | 19.6 | 9.6 | 5.4 | 12.4 | 14.3 |
| 40 - 50 | 11.3 | 11.8 | 8.6 | 5.6 | 8.5 | 9.3 |
| 50 - 75 | 9.7 | 9.3 | 13.6 | 9.1 | 10.7 | 7.7 |
| 75 - 1,000 | 10.2 | 7.4 | 33.8 | 41.3 | 14.2 | 5.8 |
| 1,000+ | 1.0 | 0.2 | 6.6 | 17.4 | 1.4 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

SOURCE: U.S. Department of the Treasury, Internal Revenue Service, *Statistics of Income, Individual Income Tax Returns: 1982* (Washington, D.C.: U.S. Government Printing Office, 1984), Table 1.4.

a. Net gains include the sale of all capital assets, not merely shares of stock.

b. This is a proxy intended to reflect the distribution of deferred capital income from pension and annuity investments.

The tax appears to be much less progressive if one assumes that all capital owners bear the burden. As the table shows, interest income is much less concentrated among the high-income classes than are dividends or capital gains. To the extent that the corporate tax reduces pension and annuity earnings, it is borne by recipients who generally have lower current

incomes. (Pension and annuity earnings are reduced to the extent that the tax lowers the deferred capital income from these plans.) In short, as more of the tax is shifted from shareholders to other earners of capital income, it becomes less progressive; and if in the long run a portion of it is shifted onto workers, it will be even less progressive.

Horizontal Equity. The double taxation of corporate dividends (and to some extent capital gains) is often criticized as forcing taxpayers to pay different amounts of tax on the same amount of capital income, depending on whether it is earned in the corporate or in the noncorporate sector. As will be demonstrated presently, the apparent double taxation probably does not exist in practice because the market adjusts to offset the differential in tax burdens.

The double-tax issue can be analyzed from the perspective of an individual investor who compares the tax on income from a noncorporate investment to the two taxes on income from a corporate investment. The tax burden that the corporate tax seems to impose is shown by marginal tax brackets in Table 6. The tax paid on $100 of noncorporate income rises from $0 for the taxpayer in the zero marginal tax bracket to $50 for the taxpayer in the 50 percent bracket. By contrast, if all corporate income were paid out as dividends, the total (personal plus corporate) taxes on $100 of corporate income would rise from $46 to $73, thereby imposing tax penalties that decline from $46 to $23 as one moves up the income scale. (The tax penalty is the difference between the taxes on the corporate and on the noncorporate income.) Even if dividends are not paid, there is still a double tax because of the taxation of capital gains on the sale of stock. In this case, the penalty declines from $46 to $1 as income rises. Note that if corporate stock is held for a long time--or until death--the capital gains tax approaches zero.[17] In this case there could be a tax advantage for income earned by a corporation for those in high-income classes: for the investor in the 50 percent bracket, the tax penalty would be a benefit of $4.

The table suggests that capital income from corporations is more heavily taxed than noncorporate income. It also indicates that double taxation causes high rates of tax on corporate income received by lower-income taxpayers--a result not consistent with careful calibration of the personal tax system to ability to pay. This occurs because corporate income is basically subject to a flat rate at the corporate level regardless of the shareholder's personal tax bracket. Proposals to integrate the two tax

17 Accrued capital gains are exempt from tax if the stock is transferred as the result of the death of the owner.

systems--that is, to tax all corporate income at personal rates--are motivated partly by the desire to eliminate the apparent inequity of overtaxing income that goes to lower-income holders of corporate stock, such as retirees.

The calculations in Table 6 assume that the corporate tax is borne solely by the stockholders and that investments cannot be shifted from the corporate to the noncorporate sector. This assumption is surely wrong, however, as investors can shift their portfolios, especially in the long run. Consider a taxpayer in the 28 percent tax bracket: both corporate and noncorporate investments might yield the same pretax return of 10 percent, but they earn different after-tax returns. The noncorporate and corporate investments would yield after-tax returns of 7.2 percent and 4.5 percent, respectively (assuming 50 percent of corporate income is distributed and 50

TABLE 6. TAX BURDEN FROM DOUBLE TAXATION OF CORPORATE INCOME

| Taxable Income (Joint Return) | Individual Marginal Tax Rate (percent) | Tax On $100 of Non-corporate Income (dollars) | Tax on $100 of Corporate Income | | |
|---|---|---|---|---|---|
| | | | All Income Paid As Dividends (dollars) | All Income Retained, Taxed As Long-Term Gains[a] (dollars) | 50% of Income Retained; 50% Paid As Dividends (dollars) |
| 3,000 | 0 | 0 | 46 | 46 | 46 |
| 4,450 | 11 | 11 | 52 | 47 | 50 |
| 13,950 | 16 | 16 | 55 | 48 | 51 |
| 22,400 | 22 | 22 | 58 | 48 | 53 |
| 32,550 | 28 | 28 | 61 | 49 | 55 |
| 52,900 | 38 | 38 | 67 | 50 | 58 |
| 97,500 | 45 | 45 | 70 | 51 | 61 |
| 170,000 | 50 | 50 | 73 | 51 | 62 |

a. The tax on long-term capital gains is computed as 40 percent of the current tax, assuming one-half of gains is realized currently and the remaining one-half is deferred indefinitely.

percent is retained).[18] The investor, therefore, has an incentive to shift investment from the corporate to the noncorporate sector in order to take advantage of the higher after-tax return.

The simple double taxation story portrayed in Table 6 does not take account of shifts in investment between sectors and the implication that no investor would buy corporate stock. In reality, taxes cause a tilt in favor of noncorporate investment that drives down the pre- and after-tax return in that sector, and allows a higher pretax return in the corporate sector. All asset returns adjust so that, within each tax bracket, after-tax returns are equal for all taxpayers. Unless this condition is met, investors have an incentive to shift their portfolios until returns are in fact equalized (allowing for such factors as risk and uncertainty, transaction costs, and liquidity.) For the investor in the 28 percent bracket, the corporate pre-tax return must be 60 percent higher in order to equalize after-tax returns. In Table 6, for example, the corporate pretax return might be 12 percent and the noncorporate return 7.5 percent, so that both investments would earn 5.4 percent on an after-tax basis. In this simple two-sector analysis, the equilibrium condition can only be achieved for one tax bracket; in a more general model with many different types of assets--subject to a variety of tax rules--the after-tax return (adjusted appropriately for asset characteristics such as risk and liquidity) earned by each asset held by investors within a given income bracket must be equalized.[19]

The market adjustments that offset double taxation reduce the potential for taxpayer inequity. Corporate investors would clearly suffer capital losses upon the initial imposition (or unanticipated increase) of a corporate tax, but once a tax was in place, new investment decisions would take it into account. Thus, current stockholders can suffer gains and losses when the

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18 This analysis assumes that the two investments are of equal risk. The arithmetic of the yields is: 7.2% = 10% - (.28 x .10%); and 4.5% = 10% - (.55 x .10%).

19 To the extent that legal restrictions limit investment in certain assets, such as Individual Retirement Accounts, some after-tax returns may not fully adjust to the average return. For a good discussion of portfolio adjustments among taxpayers in different brackets, see Harvey Galper and Eric Toder, "Transfer Elements in the Taxation of Income from Capital," in Marilyn Moon, ed., *Economic Transfers in the United States* (Chicago: University of Chicago Press, 1984), pp. 87-138.

tax code is changed, but later investors will not be taxed inequitably.[20] In the example above, the investor in the 28 percent tax bracket pays an explicit 55 percent tax on a corporate investment and an explicit 28 percent tax on a noncorporate investment. But the noncorporate investment also pays an implicit tax as a result of a reduced pretax rate of return, and the corporate investment receives an implicit subsidy because of a higher pretax return. In equilibrium, the total explicit and implicit noncorporate taxes will equal taxes in the corporate sector less the implicit subsidy. Therefore, as long as capital is free to flow between various assets (which is generally assumed to be the case in the long run), the apparent horizontal inequity of the corporate tax may be largely offset by market adjustments.

## Efficiency

The second major criterion for evaluating a tax is economic efficiency. A relatively efficient tax does not change people's behavior (for example, their work or consumption patterns) very much and does not alter the types or amount of output produced by the economy.[21] Although all taxes have some detrimental effects on economic efficiency, a desirable policy goal would be to minimize these costs, all else being equal. The corporate income tax contains three basic sources of economic inefficiency: it biases the allocation of investment from corporate to noncorporate firms; as a tax on capital income in general, it reduces the return to saving and is therefore biased against saving and in favor of current consumption; and, within the corporate sector, it favors some industries and assets over others. The tax also biases the choice between debt financing and equity financing.

Corporate-Noncorporate Distortion. The market adjustments that take place to offset the apparent horizontal inequities of the corporate tax are themselves inefficient.[22] In the simple two-sector (corporate and noncor-

20 See Boris I. Bittker, "Tax Shelters and Tax Capitalization or Does the Early Bird Get a Free Lunch?" *National Tax Journal*, vol. 28 (December 1975), pp. 416-419. Alternatively, when corporate taxes are raised, the early bird takes a bath.

21 In specific cases, such as pollution, taxes might be used efficiently to reduce (or increase) the production of some goods or services.

22 Boris I. Bittker argues that economic inefficiencies created by taxes tend to offset differences in tax burdens. See "Equity, Efficiency, and Income Tax Theory: Do Misallocations Drive Out Inequities?" in Henry J. Aaron and Michael J. Boskin, eds., *The Economics of Taxation* (Washington, D.C.: Brookings Institution, 1980), pp. 19-31.

porate) Harberger economy, investors shift assets from the more highly taxed corporate sector to the less taxed noncorporate sector until after-tax returns are equalized. Because corporations dominate some industries, such as those in manufacturing, the model suggests the corporate tax shifts investment out of those sectors and into those where unincorporated businesses are more common, such as agriculture or real estate. This implies that the economy's output will be tilted in favor of noncorporate industries--agriculture, services, housing--and away from goods produced in corporate industries that would otherwise be more highly valued by consumers. Similarly, the prices of goods produced in the noncorporate sectors will adjust downward relative to corporate goods in order to equilibrate after-tax returns.

As noted previously, some analysts argue that the effect of the tax is not to change the composition of output but to shift output within each industry to unincorporated firms until the after-tax returns for each type of firm are equalized. (At this point the tax advantage of remaining unincorporated would be outweighed by the efficiency advantages of becoming incorporated.) In this analysis, the corporate tax acts as an umbrella for unincorporated firms, resulting in more and bigger unincorporated firms than would otherwise exist. The cost of this distortion is less efficiency, including the higher information and transaction costs of noncorporate firms, their higher liquidity costs, their less efficient use of economies of scale, and their limited access to more efficient national financial markets.

Consumption-Saving Distortion. The corporate income tax has been viewed as a general tax on all capital income, not just a tax on the income produced by corporations. If this view is correct, the corporate tax effectively distorts each investor's decision as to how much to consume now and how much to save for later consumption. It does this by lowering the after-tax rate of return investors can earn on their savings. To the extent that the relatively high combined corporate and individual tax burden on capital income reduces saving, it thereby lowers the rate of capital accumulation in the economy. A slower rate of capital accumulation may slow down economic growth, hurt productivity, and erode international competitiveness.

Unfortunately, there is little agreement that the corporate income tax, even if it is a tax on capital income in general, reduces national saving. From a theoretical standpoint, the question can be argued both ways. On the one hand, people may save less when a tax reduces their after-tax rate of return; this is equivalent to a decline in the rate of interest. Because it raises the cost of shifting from present consumption to future consumption (through a lower return on saving), it will cause people to consume more in

the present. On the other hand, a lower rate of return means that people will have to save more to meet their future consumption plans, such as for retirement. The result of these opposite effects is that savings may increase or decrease as the result of a tax on capital income.

Economists have tried to measure the sensitivity of savings to the interest rate, and the results are mixed. Several empirical studies have found a significant response of savings to the after-tax real rate of interest, whereas others have found little or no effect.[23] But since savings depend on the expected real interest rate (after tax), empirical studies must use an estimate of this variable. It has been argued that "the problems of measuring the relevant real expected return are such that the econometric evidence is never likely to be compelling."[24]

Businessmen often argue that reducing taxes on investment projects will increase overall investment in the economy. This presumes that if the after-tax rate of return to marginal projects is increased, firms will be willing to undertake more and more investment. For the economy as a whole, however, this line of reasoning may not be valid. As all firms try to invest more they will bid up the price of borrowed funds or of equity financing (or of capital goods) so that the increased pretax costs of capital may offset part (or all) of a reduction in their capital income tax rates.

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23 Studies that have found a significant response of savings to the interest rate include: Michael J. Boskin, "Taxation, Saving, and the Rate of Interest," *Journal of Political Economy* (April 1978), pp. S3 - S27; and Thorvaldur Gylfason, "Interest Rates, Inflation, and the Aggregate Consumption Function," *The Review of Economics and Statistics*, vol. 63 (May 1981), pp. 233-245. Studies that have found an insignificant effect include: E. Philip Howery and Saul H. Hymans, "The Measurement and Determination of Loanable-Funds Saving," in Joseph A. Pechman, ed., *What Should Be Taxed: Income or Expenditure?* (Washington, D.C.: Brookings Institution, 1980), pp. 1-48; and Irwin Friend and Joel Hasbrouck, "Saving and After-Tax Rates of Return," *The Review of Economics and Statistics*,vol. 65 (November 1983), pp. 537-543. Barry P. Bosworth finds that the empirical evidence on savings behavior is quite sensitive to model assumptions and data manipulation and concludes that the results "must be judged as inconclusive." See *Tax Incentives and Economic Growth* (Washington, D.C.: Brookings Institution, 1984), p. 84.

24 Martin Feldstein and Daniel R. Feenberg, "Alternative Tax Rules and Personal Saving Incentives: Microeconomic Data and Behavioral Simulations," in Martin Feldstein, ed., *Behavioral Simulation Methods in Tax Policy Analysis* (Chicago: University of Chicago Press, 1983), pp. 173-210.

Unless the volume of private savings responds to higher rates of return, business investment as a whole may not rise. Consequently, reducing or eliminating corporate income taxes may not increase capital accumulation, but merely push up after-tax returns to corporate investments. On the other hand, it may attract foreign direct investment, thereby increasing capital accumulation even if domestic saving remains unaffected.

Although the effect of the corporate tax on domestic saving and investment is uncertain, other economic costs associated with taxing capital income are unambiguous. To the extent that a corporate tax imposes a "wedge" between pretax and after-tax rates of return, it raises the price of postponing consumption and tends to shift an individual's consumption pattern from future years to the present.

This economic cost is usually referred to as an "excess burden" or "deadweight loss" by economists. The loss is measured with respect to changes in economic behavior, holding constant an individual's income. For example, a tax on capital income has two basic economic effects on investors. First, it reduces their after-tax rate of return. Equivalently, such a tax can be viewed as raising the price of consumption in the future relative to consumption now, because it raises the amount of saving required to finance a given amount of future consumption. The price effect of the tax is to encourage present consumption and discourage saving. Second, the tax has the effect of reducing the saver's total income. Normally, this reduction in income from investment will reduce both present and future consumption. Thus, the "income" effect works to reduce current consumption and the "price" effect works to increase current consumption so that the net effect on current consumption (and hence on saving) is indeterminate. These offsetting effects make it difficult to isolate empirically the effect of capital income taxes on saving.

Economists have tried to estimate the "excess burden" of such taxes using the assumption that the capital income tax is replaced by another tax, of equal revenue yield, that does not change the relative price of present and future consumption. By comparing the economic behavior of individuals when tax revenue (and hence income) is held constant--that is, under a neutral tax--with their behavior under a distortionary tax, it is possible to measure the extent to which the capital income tax unambiguously imposes an incentive to consume (and a disincentive to save), all else being equal. The magnitude of the shift in consumption is used to measure the excess burden or deadweight loss from capital income taxation. It is the difference in value that consumers place on their hypothetical consumption under a

neutral tax and their consumption under a tax system that taxes the returns to saving.[25]

Several attempts have been made to measure the inefficiency of the corporate tax. One analysis estimated the cost of the corporate tax on the economy at roughly 0.5 percent of national income.[26] Since national income in 1983 was $2.65 trillion, this suggests a cost of roughly $13 billion, or about one-quarter of actual collections. Using a more complex model of the economy, another analysis found that the switch from a nonintegrated to an integrated corporate tax would yield annual efficiency gains of similar magnitude, on the order of 0.5 to 0.6 percent of national income.[27] Both estimates were based on pre-ERTA law, but they suffice to indicate the potential excess burden imposed by a separate tax on corporate income.

The Effect of Interest Deductibility. At present, the corporate (as well as the personal) income tax allows deductions for interest payments in the calculation of taxable income. This provision raises two issues in regard to the efficiency of the corporate tax. First, how does this feature of the tax system affect the investment bias between corporate and noncorporate firms? Second, does it distort corporate decisions related to debt and equity financing? It is likely that the provision for interest deductibility tends to reduce the corporate-noncorporate bias, but at the cost of inefficient decisions regarding corporate finance.

On the first question, one writer argues that the effect of interest deductibility is to neutralize the effect of the corporate income tax so that "it does not shift resources (at the margin) from the corporate to the non-

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25 For this analysis, "consumption" refers to current and future consumption, discounted back to the present. Discounting is required in order to put both multiperiod consumption streams on a comparable basis.

26 Martin Feldstein, "The Welfare Cost of Capital Income Taxation," *Journal of Political Economy*, vol. 86 (April 1978), p. S48. This result was based on the assumption that the corporate tax is eliminated and replaced with higher personal income tax rates in order to maintain revenue neutrality. Feldstein also assumed that both labor and savings were unaffected by taxes on either wages or capital income.

27 Don Fullerton and others, "Corporate Tax Integration in the United States: A General Equilibrium Approach," *The American Economic Review*, vol. 71 (September 1981), pp. 677-691.

corporate sector."[28] In general, an income tax that taxes interest income, but also allows a deduction for interest expenses, does not impose a corporate-level double tax on income from debt-financed assets at the margin.[29] It follows that because interest payments are deductible under both the corporate income tax and the personal income tax, and both corporate and noncorporate firms face the same market interest rate, the corporate tax does not distort the allocation of investment between the two forms of business organization. To the extent that new investment is financed with debt, the corporate tax is a tax only on above-average returns to corporate capital (or pure profits) in the corporate sector.[30] Pure profits are returns in excess of the cost of capital (that is, the interest rate) and may be the result of entrepreneurial skill and innovation, successful new technologies, or market power. In this context, the corporate tax is simply a "lump sum" tax on the value of new ideas that does not interfere with marginal investment decisions.

The significance of this argument is twofold. First, it means that the corporate tax may not in fact impose an economic distortion between corporate and noncorporate firms.[31] Second, it implies that the tax is not shifted but is borne only by stockholders.

Corporations, however, do not finance all their new investment with debt, as the analysis assumes. Often they use retained earnings, and sometimes they issue new shares. There are several reasons why corporations do not finance new investments completely with debt, although such a strategy would allow them to avoid the corporate tax. For one thing, they may wish to minimize the amount of debt they carry in order to reduce the

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28 Joseph E. Stiglitz, "Taxation, Corporate Financial Policy, and the Cost of Capital," *Journal of Public Economics*, vol. 2 (February 1973), pp. 1-34.

29 This result occurs because, on a marginal investment, a firm will equate the return on the asset with the cost of funds. For example, suppose a firm can buy a machine that yields a 10 percent rate of return for $1,000. If the interest rate is 10 percent, and the firm borrows the full purchase price, the $100 in income yielded by the machine will be offset completely by the $100 interest expense, resulting in no net tax liability.

30 Stiglitz, "Taxation, Corporate Financial Policy, and the Cost of Capital," p. 26.

31 This analysis does not affect the possible distortions among assets in the corporate sector, which will be addressed below

danger of bankruptcy.[32] For another, because the tax system provides accelerated depreciation and investment tax credits, additional debt financing may lower taxable income to the point where companies cannot use all their depreciation deductions and credits on a current basis (although they may still be able to use them in later years by virtue of the carryover rules).[33] Unincorporated businesses may be able to take full advantage of all their deductions because they can deduct them from the unrelated taxable income of their owners, whereas corporate stockholders cannot deduct corporate losses from their incomes. In short, in cases where new investment is only partly financed by debt, unincorporated firms may have a tax adva tage because of the corporate tax; the advantage, however, is not as large as implied by previous estimates.[34]

The provision for interest deductibility reduces the investment bias between corporate and noncorporate firms, but it does so by inducing corporations to rely more heavily on borrowing as a way of financing assets. This raises the potential for inefficient risk-taking among investors.[35] The increased riskiness of financial assets is like a tax imposed on savings, and has a similar effect on decisions to save and invest. To the extent that the corporate tax raises the riskiness associated with various financial assets, the tax is biased against saving and in favor of current consumption.

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32 J. Gregory Ballentine, *Equity, Efficiency and the U.S. Corporate Income Tax* (Washington, D.C.: American Enterprise Institute, 1980), p. 60.

33 Joseph J. Cordes and Steven M. Sheffrin, "Taxation and the Sectoral Allocation of Capital in the U.S.," *National Tax Journal*, vol. 34 (December 1981), pp. 419-432.

34 Gordon and Malkiel estimate the economic cost of the corporate-noncorporate distortion at about one-quarter to one-third the size of earlier estimates that did not take account of the deductibility of interest. Roger H. Gordon and Burton G. Malkiel, "Corporation Finance," in Henry J. Aaron and Joseph A. Pechman, eds., *How Taxes Affect Economic Behavior* (Washington, D.C.: Brookings Institution, 1981), p. 182.

35 Joel Slemrod, *Tax Effects on the Allocation of Capital Among Individuals, A Portfolio Approach*, Working Paper No. 951 (Cambridge, Mass., National Bureau of Economic Research, 1982). Slemrod's analysis indicates that the cost of inefficient risk-bearing is roughly $3 billion (in 1975 dollars).

## DISTORTION IN THE COMPOSITION OF INVESTMENT

While controversy exists over the source and size of efficiency costs from a corporate income tax, students agree that the tax does bias investment decisions toward (or against) certain favored assets or industries within the corporate sector. Even when such bias is the intended consequence of Congressional policy, it may result in allocations of capital that are less productive. It should be noted that most of these tax subsidy provisions relate to all businesses (corporate and noncorporate) and are not solely the result of the corporate tax alone.

A tax system that was neutral among investments would be economically efficient because it would allow output to be maximized for a given level of capital stock. The cost of a nonneutral tax can be shown by an example. Suppose investors can earn a 10 percent pretax return on investments in petroleum refining and in electronics, and that taxes of 40 percent on refining and 30 percent on electronics are imposed. Since investors can earn an after-tax return of 6 percent in refining and 7 percent in electronics; they will surely shift their capital to electronics. Eventually after adjustments are made, both industries will earn the same after-tax return, say 6.5 percent. But in order for this to occur, pretax returns must rise in refining to 10.8 percent, and fall in electronics to 9.3 percent.[36] These changes imply that capital earns a higher marginal product (pretax) in refining than in electronics, and this is not an efficient outcome. It is not efficient because capital could be moved from the electronics industry, where it produces a net product valued at 9.3 cents on the dollar, to the refining sector where it produces a net product worth 10.8 cents, resulting in a net economic gain of 1.5 cents. This forgone gain is the cost of imposing nonneutral taxes. Were pretax as well as post-tax returns equal for the two industries, no such potential gains would be possible.

### Effective Marginal Tax Rates

The relative neutrality of the corporate tax can be measured by the variance in tax rates among different types of investment. The larger the variance in tax rates, the less neutral the tax and the greater the potential economic costs resulting from misallocation of the capital stock. Recently, several attempts have been made to calculate marginal tax rates on new

36 As investment is shifted among the two industries, output (supply) changes. Since prices are determined by the interaction of supply and demand, changes in output translate directly into price changes.

investments in different types of assets and in different industries in order to estimate the cost of nonneutral taxation.[37] These studies have limited their analysis to differences in tax rates that arise primarily because of the tax rules for depreciation and the investment tax credit. (A more detailed discussion of how different depreciation rules affect asset tax rates is presented in Appendix B.) Since these provisions affect virtually all industries and all capital assets, except inventories, they affect the allocation of capital in the economy.

Representative marginal corporate tax rates for 30 asset classes (equity-financed) are shown in Table 7. The asset classes are those used in the National Income and Product Accounts; the economic depreciation rates indicate the relative productive life of the assets.[38] For example, the 33.33 percent depreciation rate on automobiles indicates that automobiles lose about 33.33 percent of their remaining real value each year; by contrast, industrial buildings lose only about 3.61 percent of their remaining real value each year. Assets with lower depreciation rates have longer productive lives, and vice versa.

The tax rates are shown for three different years--1980, 1982, and 1985--to indicate how effective rates have changed as the tax rules regarding depreciation and the investment tax credit have been changed. The calculations reflect only biases in these rules, apart from other code provisions. The year 1980 was the last year under which assets were depreciated under the Asset Depreciation Range (ADR) system; 1982 includes the tax rules of the Economic Recovery Tax Act (ERTA), and 1985 includes the changes in depreciation passed as part of the Tax Equity and Fiscal Responsibility Act (TEFRA) and the Deficit Reduction Act (DEFRA). The tax rates are all based on an assumed expected inflation rate of 6 percent and an assumed real rate of return of 4 percent. Therefore, they do

37 These tax rates are hypothetical in that they measure the expected tax rate on an asset or industry, given certain assumptions as to pattern of output, relative prices, and interest rates. Effective tax rates are usually calculated on the assumptions that the original purchaser does not resell the asset, that the firm has sufficient net taxable income and tax liability to use all available deductions and credits, and that there are no tax rule changes over the life of the asset.

38 The economic depreciation rates are those calculated by Charles R. Hulten and Frank C. Wykoff, "The Measurement of Economic Depreciation," in Charles R. Hulten, ed., *Depreciation, Inflation, and the Taxation of Income From Capital* (Washington, D.C.: Urban Institute Press, 1981), pp. 81-125.

TABLE 7. EFFECTIVE CORPORATE TAX RATES ON SELECTED ASSETS
(In percent)

| Asset Category | Tax Rates | | | Depreciation Rate |
|---|---|---|---|---|
| | 1980 (ADR) | 1982 (ERTA) | 1985 (DEFRA) | |
| Furniture and Fixtures | 10.1 | -23.0 | -5.6 | 11.00 |
| Fabricated Metal Products | 26.7 | 0.0 | 10.0 | 9.17 |
| Engines and Turbines | 34.8 | 15.8 | 21.7 | 7.86 |
| Tractors | 12.8 | -33.2 | -7.2 | 16.33 |
| Agricultural Machinery | 9.3 | -20.6 | -5.1 | 9.71 |
| Construction Machinery | 14.2 | -35.7 | -7.9 | 17.22 |
| Mining and Oil Field Machinery | 25.0 | -34.4 | -7.8 | 16.50 |
| Metalworking Machinery | 18.0 | -24.8 | -5.6 | 12.25 |
| Special Industry Machinery | 16.6 | -21.6 | -5.2 | 10.31 |
| Special Tools | 25.6 | -75.7 | -21.9 | a |
| General Industrial Equipment | 23.8 | -14.4 | 1.6 | 12.25 |
| Office, Computing, and Accounting Machinery | 6.4 | -64.1 | -12.4 | 27.29 |
| Service Industry Machinery | 11.7 | -31.3 | -5.9 | 16.50 |
| Electrical Transmission and Distribution Equipment | 34.5 | 7.3 | 17.1 | 11.79 |
| Communication Equipment | 25.9 | -22.6 | -4.6 | 11.79 |
| Other Electrical Equipment | 17.1 | -16.7 | 0.0 | 11.79 |
| Trucks, Buses, and Trailers | 15.1 | -55.1 | -13.1 | 25.37 |
| Automobiles | 24.1 | -60.8 | -19.0 | 33.33 |
| Aircraft | 23.5 | -38.7 | -8.5 | 18.33 |
| Ships and Boats | 31.8 | -16.8 | -4.2 | 7.50 |
| Railroad Equipment | 19.0 | -15.3 | -3.9 | 6.60 |
| Instruments | 25.7 | -11.3 | 5.8 | 15.00 |
| Industrial Buildings | 52.3 | 38.5 | 41.6 | 3.61 |

a. Assumed to be 1.25 divided by the asset's ADR midpoint life, depending on its industry.

(Continued)

TABLE 7. (Continued)

| Asset Category | Tax Rates 1980 (ADR) | 1982 (ERTA) | 1985 (DEFRA) | Depreciation Rate |
|---|---|---|---|---|
| Commercial Buildings | 48.2 | 34.8 | 37.7 | 2.47 |
| Railroad Structures | 27.2 | 32.2 | 35.0 | 1.76 |
| Telephone and Telegraph Facilities | 36.2 | 15.3 | 18.8 | 3.33 |
| Electric Light and Power | 26.7 | 13.7 | 17.3 | 3.00 |
| Gas Facilities | 34.0 | 14.7 | 18.2 | 3.00 |
| Petroleum Pipelines | 24.7 | 10.5 | 14.5 | 4.50 |

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions of 100 percent equity financing, a 6 percent expected inflation rate, and a real rate of return of 4 percent net of the corporate taxes. The taxpayer is a corporation with a statutory maginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and capital gains are not counted in the calculation; the tax rate is the corporate level tax only.

not reflect changes in effective tax rates that occurred over the 1980-1985 period because of changes in those variables.

Under the ADR system, tax rates on most assets were positive and varied substantially across asset types. In general, effective tax rates on equipment and machinery were significantly lower than the 46 percent statutory rate, and also much lower than on buildings and structures. This was largely because equipment and machinery were eligible for the investment tax credit, while buildings and structures were generally not. In 1980, the effective tax rates on several types of building assets exceeded the statutory rate because tax depreciation allowances (in real terms) were insufficient to cover real economic depreciation.

Liberalization of depreciation allowances and expansion of the ITC under ERTA significantly reduced tax rates for all assets, to the point where rates on many equipment and machinery assets actually became negative.

(A negative tax rate implies that the present value of the front-loaded tax deductions and credits exceeds that of future taxes.[39]) The effective tax rates on buildings are below the statutory rate, although they remain relatively high. In 1983, the changes in TEFRA (requiring a 50 percent basis adjustment for the ITC) significantly affected the tax rates applicable to equipment and machinery. The changes in DEFRA in 1985 only affected real property. In 1985, all tax rates are higher than under ERTA, albeit quite low for many equipment asset categories. For equipment, as indicated by effective tax rates close to zero, the current rules have roughly the same effect as full immediate expensing. The effective rates for industrial and commercial buildings are about 40 percent.[40]

Rates by Industry

The effective tax rates presented in Table 7 are based on individual assets. Table 8 presents similar calculations by industry. Again, these theoretical marginal rates only incorporate the effects of depreciation and investment credit provisions--no other specific industry or asset provisions are taken into account. Also, only investments in equipment and structures are included; investment in inventories, land, patents, goodwill, or other assets has not been taken into account. The rates are influenced by the extent to which some industries, such as transportation, invest heavily in equipment relative to structures, whereas many other industries invest relatively more in buildings. As most industries use both equipment and structures, albeit in varying proportions, the variation in tax rates across industries is not as

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39 Alternatively, the required pretax return from an asset is less than the after-tax return, even though taxes may be paid in some years.

40 Other economists have calculated effective tax rates using methods similar to those employed here. Although tax rates are quite sensitive to assumptions as to the rates of economic depreciation, inflation, interest, and discounting methods, the basic results are unaltered: equipment and machinery assets are highly favored relative to buildings. See Charles R. Hulten and James W. Robertson, *Corporate Policy and Economic Growth: An Analysis of the 1981 and 1982 Tax Acts*, Urban Institute Discussion Paper (December 1982); Gregg A. Esenwein and Jane Gravelle, *Effective Tax Rates Under the Accelerated Cost Recovery System (ACRS) and the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA)*, Congressional Research Service (January 3, 1983); Council of Economic Advisers, *Economic Report of the President, 1982;* and Alan J. Auerbach, "Corporate Taxation in the United States," *Brookings Papers on Economic Activity, 2:1983* (Washington, D.C.: Brookings Institution, 1984).

TABLE 8. EFFECTIVE TAX RATES ON PLANT AND EQUIPMENT, SELECTED INDUSTRIES, 1985 (In percent)

| Category | Current Law Tax Rate |
|---|---|
| Manufacturing: | |
| Food and kindred products | 24.0 |
| Tobacco manufactures | 23.7 |
| Textile mill products | 20.6 |
| Apparel and other fabricated textile products | 22.4 |
| Paper and allied products | 13.8 |
| Printing, publishing, and allied industries | 25.8 |
| Chemicals and allied products | 18.3 |
| Petroleum and coal products | 31.9 |
| Rubber and miscellaneous plastic products | 18.0 |
| Leather and leather products | 27.0 |
| Lumber and wood products, except furniture | 20.3 |
| Furniture and fixtures | 27.9 |
| Stone, clay, and glass products | 21.7 |
| Primary metal industries | 23.3 |
| Fabricated metal industries | 23.7 |
| Machinery except electrical | 20.6 |
| Electrical machinery, equipment, and supplies | 20.9 |
| Transportation equipment, except motor vehicles and ordnance | 27.8 |
| Motor vehicles and motor vehicle equipment | 16.3 |
| Instruments | 23.2 |
| Construction | 16.1 |
| Transportation | 14.3 |
| Communication | 8.6 |
| Public Utilities | 20.9 |
| Wholesale and Retail Trade | 24.9 |
| Services | 19.8 |

NOTE: Tax rates are computed under the assumptions of 100 percent equity financing, a 6 percent expected inflation rate, and a real rate of return of 4 percent net of the corporate taxes. The taxpayer is a corporation with a statutory maginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and capital gains are not counted in the calculation; the tax rate is the corporate-level tax only.

large as it is across asset types. In general, most industries have effective corporate tax rates in the range of 15 to 25 percent. The variation in tax rates would probably be much larger if different debt-equity ratios, assets other than depreciable capital, and other specific industry tax provisions were taken into account.

The variation in effective tax rates implies allocative inefficiencies across industries: within any given industry, firms will shift their production processes to rely more heavily on lightly taxed assets, such as equipment, relative to more heavily taxed assets, such as buildings; and investment will be diverted from heavily taxed to more lightly taxed industries. One economist estimates that of the total economic distortion resulting from tax rate differentials, about 80 percent can be assigned to distortions within industries, and 20 percent to distortions across industries.[41] This suggests that, in terms of economic efficiency, the interasset tax rate variations are relatively more important than the interindustry variations.

The economic cost of nonneutral taxation is that the existing capital stock produces less than it could if all tax rates were the same. This cost depends on how easily different types of assets can be substituted for one another in production. If assets can be easily substituted, this cost is likely to be higher than otherwise. Auerbach estimates that under TEFRA law, about 1.5 percent of the corporate capital stock would be wasted each year in the long run; that is, the same output could be produced with 98.5 percent of the existing capital if it were all taxed alike.[42] At year-end 1982, the net corporate stock of depreciable capital totaled about $2 trillion so that wasted capital stock amounted to about $30 billion, assuming the capital stock had fully adjusted in response to all changes in the tax law.[43] This

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41 Auerbach, "Corporate Taxation in the United States," pp. 470-471.

42 This compares to waste estimates of 2.8 percent and 3.2 percent under ADR (in 1980) and ERTA (in 1981), respectively. Auerbach, "Corporate Taxation in the United States," p. 471.

43 Auerbach assumes assets can be substituted with a "unitary elasticity." This implies that a 1 percent increase in an asset's cost reduces its employment by 1 percent. Using a similar methodology, but different assumptions, Gravelle finds an estimated waste of the capital stock of about $20 billion. See Jane G. Gravelle, "Capital Income Taxation and Efficiency in the Allocation of Investment," *National Tax Journal*, vol. 36 (September 1983), pp. 297-306. Both Gravelle and Auerbach estimate that the economic waste from nonneutral

estimate of capital waste only applies to the corporate sector and the corporate tax. It takes no account of the economic costs of nonneutral taxation of assets in the unincorporated business, household, and government sectors, which could be many times greater than those in the corporate sector.[44]

The taxation of assets at different rates is the result of the Congressional intent to provide explicit investment subsidies through the tax code. The Congress may want to continue these tax provisions that encourage equipment and machinery acquisitions. If not, the next chapter addresses several issues that the Congress might wish to consider if it wants a more neutral investment policy.

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taxation is less under TEFRA than under either ADR (1980) or ERTA (1981). This is because the gap in tax rates between lightly taxed equipment and heavily taxed buildings has been reduced as a result of the combined effects of ERTA and TEFRA.

44 Gravelle finds economywide capital waste under TEFRA to be on the order of 2.5 percent of the private capital stock, or about $180 billion. "Capital Income Taxation and Efficiency in the Allocation of Investment," pp. 303-304.

## CHAPTER V

# CURRENT INVESTMENT TAX INCENTIVES

Chapter IV ended with a discussion of nonneutrality in the tax system--that is, the tendency of the corporate tax to bias investment decisions toward certain assets or industries. This chapter expands that discussion to include other aspects of the tax code--the treatment of tax losses, the investment tax credit, and the effects of inflation. It also discusses the merits of providing tax incentives for specific industries.

## ISSUES IN THE DESIGN OF GENERAL INVESTMENT INCENTIVES

Over the last two decades, the Congress has used tax incentives to encourage investment in capital goods such as plant and equipment. To this end, it has provided for accelerated depreciation allowances (ACRS) and investment tax credits on newly acquired assets. The rationale was to offer general inducements for all industries to increase their investment, without the loss of revenue from reducing the taxes on profits earned on assets already in place.[1]

It is desirable to design investment subsidies to minimize the distorting effects of the tax system on economic decisions. Thus, no company should be given a competitive advantage simply because of lower taxes. Four basic factors that affect the neutrality of corporate taxes are the rate of inflation, the treatment of net operating losses, the deductibility for interest, and the tax credit for investment (in conjunction with ACRS).

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1 Accelerated depreciation is also allowed on newly acquired used property; the investment tax credit is limited to the first $125,000 of newly acquired used property.

## Inflation

Inflation biases investment incentives to the extent that tax deductions are based on historical cost and are spread out over future periods, as in the case of accelerated depreciation. At higher rates of inflation, future depreciation deductions are worth less because they are not indexed for inflation. Even if inflation could be predicted accurately at the time of an asset's acquisition, the expected effective marginal tax would be quite sensitive to the inflation rate.

The effect of inflation (fully anticipated) on selected asset types is illustrated in Table 9. It shows the marginal effective corporate tax rates that a firm would expect to pay over the lives of different assets.[2] A particularly interesting example in this table assumes 7.35 percent inflation, at which rate assets in the three-year and five-year ACRS classes have tax rates that are close to zero.[3] Thus, if a 7.35 percent inflation rate prevails, assets in the three-year and five-year classes will be subject to essentially no tax (on average), regardless of their true useful lives. For public utility assets (both 10-year and 15-year ACRS classes) and for buildings, effective tax rates (at 7.35 percent inflation) are significantly above zero. Most of the difference in tax rates between public utility and building assets is attributable to the investment tax credit that applies to public utility assets but not to buildings.

As can be seen, tax rates vary substantially under different expected rates of inflation in several ways. First, under higher rates of inflation, all effective tax rates rise. Inflation erodes the real value of depreciation allowances because they are tied to historical acquisition cost and are not indexed for inflation. Conversely, as inflation decreases, tax rates decline

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2 The rates are calculated using the same basic methodology (but different assumptions) as used for those shown in Table 7. The assets are 100 percent equity financed, and it is assumed that investments must earn a real return of at least 4 percent, after corporate tax. The rates of economic depreciation indicate the relative durabilities of the assets--assets with lower depreciation rates have longer useful lives. All tax rates are computed under current tax law.

3 Indeed, one of the purposes of the 50 percent basis adjustment made by TEFRA was to keep ACRS (including the ITC) tax benefits from being more generous than expensing. Joint Committee on Taxation, *General Explanation of the Revenue Provisions of the Tax Equity and Fiscal Responsibility Act of 1982*, 97:2 (December 31, 1982), pp. 35-36.

TABLE 9. EFFECT OF INFLATION ON ASSET TAX RATES AND REAL PRETAX RETURNS

| Asset Class | Economic Depreciation Rate | ACRS Class (years) | Inflation Rate (in percents) 2 | 5 | 6 | 7.35 | 9 |
|---|---|---|---|---|---|---|---|
| | | | **Effective Tax Rates** | | | | |
| Automobiles | 33.33 | 3 | -65.9 | -27.7 | -19.0 | -9.2 | 0.5 |
| Computers | 27.29 | 5 | -88.6 | -24.3 | -12.4 | 0.0 | 11.4 |
| Aircraft | 18.33 | 5 | -50.4 | -16.2 | -8.5 | 0.0 | 8.4 |
| General Industrial Equipment | 12.25 | 5 | -32.3 | -11.3 | -6.1 | 0.0 | 6.3 |
| Electrical Machinery | 11.79 | 5 | -31.1 | -11.0 | -5.9 | 0.0 | 6.1 |
| Engines and Turbines | 7.86 | 10 | 5.3 | 19.0 | 22.3 | 26.1 | 30.0 |
| Electric Light and Power | 3.00 | 15[a] | 6.9 | 15.9 | 18.1 | 20.8 | 23.6 |
| Industrial Buildings | 3.61 | 18 | 33.8 | 40.1 | 41.6 | 43.3 | 45.1 |
| Commercial Buildings | 2.47 | 18 | 30.3 | 36.2 | 37.7 | 39.4 | 41.1 |
| | | | **Required Real Pretax Rates of Return** | | | | |
| Automobiles | 33.33 | 3 | 2.4 | 3.1 | 3.4 | 3.7 | 4.0 |
| Computers | 27.29 | 5 | 2.1 | 3.2 | 3.6 | 4.0 | 4.5 |
| Aircraft | 18.33 | 5 | 2.7 | 3.4 | 3.7 | 4.0 | 4.4 |
| General Industrial Equipment | 12.25 | 5 | 3.0 | 3.6 | 3.8 | 4.0 | 4.3 |
| Electrical Machinery | 11.79 | 5 | 3.1 | 3.6 | 3.8 | 4.0 | 4.3 |
| Engines and Turbines | 7.86 | 10 | 4.2 | 4.9 | 5.2 | 5.4 | 5.7 |
| Electric Light and Power | 3.00 | 15[a] | 4.3 | 4.8 | 4.9 | 5.1 | 5.2 |
| Industrial Buildings | 3.61 | 18 | 6.0 | 6.7 | 6.8 | 7.1 | 7.3 |
| Commercial Buildings | 2.47 | 18 | 5.7 | 6.3 | 6.4 | 6.6 | 6.8 |

SOURCE: Congressional Budget Office.

NOTE: All calculations are based on a required after-tax real rate of return of 4 percent and 100 percent equity financing.

a. 15-year public utility property, subject to the 10 percent investment tax credit.

and may fall significantly below zero. (A negative tax rate indicates that the after-tax rate of return exceeds the before-tax rate of return. In many cases, the new investment would not be profitable and would not be undertaken, except for the associated tax benefits.)

Under current law, the tax rates for short-lived assets are much more sensitive to varying levels of inflation than are rates for long-lived assets. Also, at rates of inflation other than 7.35 percent, the approximate equivalence to expensing--that is, the writing off of assets as they are purchased--is lost, and the tax neutrality among types of equipment no longer exists. Under actual expensing of all asset costs, and assuming no investment tax credit, all asset tax rates would be zero for all rates of inflation. Thus, if a zero effective tax rate is a desirable policy goal, actual expensing would have advantages over the current law in that tax rates would not be subject to variation because of changes in inflation.[4] Full uniformity of all asset tax rates (at zero rate) would require that all assets--not just equipment and machinery--be eligible for full expensing. A uniform tax rate (the statutory tax rate) could also be achieved by allowing firms to deduct economic depreciation, indexed for inflation, on an annual basis.[5] (Economic depreciation is the actual decline in an asset's real value over its productive life. Appendix B provides a detailed discussion of the relationship between economic depreciation and tax depreciation.)

The bottom panel of Table 9 shows the pretax return required for the corporation to earn a 4 percent real return after taxes. In the case where inflation is 7.35 percent, the required pretax return for most three-and five-year equipment is about 4 percent, the same as the after-tax return. This is another way of illustrating that the tax rate on such assets is effectively zero. For assets with negative tax rates, the pretax rate of return is less than the required after-tax return of 4 percent. As the effective tax rates in the upper panel would indicate, the required pretax return for buildings is significantly higher than for equipment. The required pretax return for each asset increases with inflation in order to compensate investors for the real loss in the value of depreciation deductions that occurs at higher rates of inflation.

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4 Also, no indexing of asset costs would be necessary.

5 A linear combination of expensing and indexed economic depreciation would also result in uniform tax rates. For example, allowing 65 percent of an asset's cost to be expensed, and the remaining 35 percent to be subjected to indexed economic depreciation, would result in an effective tax rate 50 percent of the statutory rate of 46 percent, or 23 percent.

## Tax Losses

Under current law, firms must have positive taxable income and tax liability in order to use their deductions and credits; otherwise, the deductions or credits must be carried over. The tax law allows most firms to carry back current operating losses for 3 years or carry them forward for 15 years. A carryback allows a firm to reduce a prior year's income and thereby receive a refund for taxes previously paid. A carryforward allows a firm to reduce its net taxable income in the future, thereby reducing future taxes. Carrybacks are worth more because they allow the firm to get an immediate refund, as opposed to a carryforward, which is realized sometime in the future. Investment tax credits also can be carried back for 3 years and forward for 15 years.

The use of carryover rules instead of immediate refundability can create a bias against firms without taxable income when the tax system is used to deliver investment incentives. For example, ACRS substantially increased deductions for depreciation to the point where a profitable firm may report a net loss for tax purposes. In this case, the extra deductions are worth less than their full value because they cannot be deducted until some future year (assuming the firm cannot carry them back). In order to allow firms that did not have a current tax liability to benefit from the provisions for more generous accelerated depreciation allowances and expanded investment tax credits, the Congress broadened the rules for the leasing of assets when it passed the Economic Recovery Tax Act in 1981. The safe harbor leasing rules in ERTA made it easier for companies to sell an asset to another firm and then lease it back.[6] The sale-leaseback was a purely financial transaction; no real assets were moved or had their use changed. The purpose of safe harbor leasing was to enable a firm that was not currently profitable (from a tax standpoint) to benefit from some portion of the depreciation allowances and credits allowed by the tax code. The safe harbor rules were criticized as allowing firms with tax losses to realize more than the full benefit of the investment incentive.[7] Although the safe harbor leasing rules were repealed by the Tax Equity and Fiscal

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6 The rules are referred to as a "safe harbor" because if a lease conforms to them it will be automatically approved by the IRS; nonconforming leases may be subject to IRS scrutiny.

7 Donald C. Lubick and Harvey Galper, "The Defects of Safe Harbor Leasing and What to Do About Them," *Tax Notes*, vol. 19 (March 15, 1982), pp. 643-652.

Responsibility Act of 1982, some provisions for tax leasing remain part of the tax code.[8]

Without leasing, firms in a tax loss position--even though profitable from an economic standpoint--cannot realize all the benefits provided by investment subsidies. Firms with taxable income are able to receive the full investment subsidy, while those with tax losses that must be carried forward can receive only a part of the subsidy.[9] (Firms that can carry back their losses do receive the full benefit of the subsidy, however, as they receive a refund of taxes previously paid.) The denial of the tax incentive to some firms, such as those recovering from temporary losses, has been seen as possibly unfair. Although firms can carry over tax losses and investment credits, and may be able to realize the tax benefits some time in the future, their value is reduced by an amount equal to the interest forgone in the interim.[10] This implicit interest cost may be especially important to new and growing companies that have relatively low taxable income and large investment expenditures.

The effect of a firm's tax-loss position on asset tax rates is shown in Table 10. A tax loss has offsetting effects on asset tax rates. While deductions and credits are not immediately usable, the income from a newly purchased asset is not taxed either. Because of the subsidy element, the deductions and credits (in the first few years) exceed the income of an asset, and therefore effective marginal tax rates are higher for new assets acquired by firms suffering tax losses. In other words, firms with current tax losses can expect to pay a higher effective tax rate on a new asset than a currently taxable firm would pay on the same, equally profitable (before taxes), asset.

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8 The provisions for "finance leases" adopted as part of TEFRA allow greater flexibility than the rules prior to ERTA but are much stricter than the original safe harbor rules. The finance leasing rules were originally scheduled to take effect in 1984, but have been postponed until 1988 by the Deficit Reduction Act of 1984.

9 Because of the large subsidy being provided by ACRS, firms may be economically profitable but show a tax loss for many years.

10 If, however, a firm paid taxes in prior years and is able to carry back a tax loss, this is equivalent to immediate realization. Firms can carry back tax losses for three years.

TABLE 10. EFFECT OF TAX LOSSES ON ASSET TAX RATES

| Asset Class | Economic Depreciation Rate | ACRS Class | Number of Years in Tax Loss Position | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0 | 1 | 3 | 5 | 10 | 15 |
| | | | **Effective Tax Rates** | | | | | |
| Automobiles | 33.33 | 3 | -19.0 | 4.5 | 32.4 | 37.1 | 27.8 | 16.1 |
| Computers | 27.29 | 5 | -12.4 | 4.5 | 19.1 | 27.9 | 24.9 | 15.0 |
| Aircraft | 18.33 | 5 | -8.5 | 4.8 | 21.1 | 31.0 | 31.1 | 22.5 |
| General Industrial Equipment | 12.25 | 5 | -6.1 | 4.4 | 20.2 | 30.6 | 33.7 | 27.1 |
| Electrical Machinery | 11.79 | 5 | -5.9 | 4.3 | 20.0 | 30.5 | 33.8 | 27.4 |
| Engines and Turbines | 7.86 | 10 | 22.3 | 25.7 | 30.5 | 32.9 | 33.8 | 29.4 |
| Electric Light and Power | 3.00 | 15[a] | 18.1 | 20.4 | 24.6 | 27.7 | 30.9 | 29.4 |
| Industrial Buildings | 3.61 | 18 | 41.6 | 41.7 | 41.5 | 40.8 | 37.2 | 32.2 |
| Commercial Buildings | 2.47 | 18 | 37.7 | 37.8 | 37.8 | 37.6 | 35.2 | 31.3 |
| | | | **Required Real Pretax Rates of Return** | | | | | |
| Automobiles | 33.33 | 3 | 3.4 | 4.2 | 5.9 | 6.4 | 5.5 | 4.8 |
| Computers | 27.29 | 5 | 3.6 | 4.2 | 4.9 | 5.5 | 5.3 | 4.7 |
| Aircraft | 18.33 | 5 | 3.7 | 4.2 | 5.1 | 5.8 | 5.8 | 5.2 |
| General Industrial Equipment | 12.25 | 5 | 3.8 | 4.2 | 5.0 | 5.8 | 6.0 | 5.5 |
| Electrical Machinery | 11.79 | 5 | 3.8 | 4.2 | 5.0 | 5.8 | 6.0 | 5.5 |
| Engines and Turbines | 7.86 | 10 | 5.2 | 5.4 | 5.8 | 6.0 | 6.0 | 5.7 |
| Electric Light and Power | 3.00 | 15[a] | 4.9 | 5.0 | 5.3 | 5.5 | 5.8 | 5.7 |
| Industrial Buildings | 3.61 | 10 | 6.8 | 6.9 | 6.8 | 6.8 | 6.4 | 5.9 |
| Commercial Buildings | 2.47 | 18 | 6.4 | 6.4 | 6.4 | 6.4 | 6.2 | 5.8 |

SOURCE: Congressional Budget Office.

NOTE: All calculations are based on a required after-tax real rate of return of 4 percent, an expected inflation rate of 6 percent, and 100 percent equity financing.

a. 15-year public utility property, subject to the 10 percent investment tax credit.

The table shows that effective tax rates rise significantly because of tax losses. Firms with positive taxable income have a lower effective tax rate on new investment than firms with tax losses. For example, the effective tax rate on computers is about 28 percent for a firm with an expected tax-loss period of five years compared to -12 percent for a firm with currently taxable income. This implies that tax-loss firms have to earn a higher pretax rate of return (than firms with no tax loss) in order to make an investment opportunity worthwhile. In the case of computers, the difference is between a 5.5 percent return for the nontaxable firm and only 3.6 percent for the taxable firm.

The pattern of effective tax rates (relative to tax-loss terms) for equipment and machinery indicates rising rates followed by a gradual reduction. For example, the effective tax rate for general industrial equipment reaches 34 percent for a firm with 10 years of tax loss; after that, the tax rate falls. If a tax-loss firm were never to achieve positive taxable income the effective tax rate would be zero, since neither taxes nor tax benefits would ever be realized on the investment.[11]

The tax rate calculations in Table 10 assume the asset is bought and used by only one firm. Leasing, however, allows firms with tax losses to realize current investment incentives. For example, the required real return on electrical machinery for a firm with no tax loss is 3.8 percent, but for a firm with three years of prospective losses it is 5.0 percent. Under the finance leasing rules (scheduled to take effect in 1988), the firm in the tax-loss position could lease the asset from a taxable firm, paying a rent that returned the required 3.8 percent return. It could thus reduce its required return from 5.0 percent to 3.8 percent simply by leasing instead of purchasing the machinery. The traditional leasing rules also allow this type of leasing to occur, but they limit the kinds of assets that can be leased to multiple-use property such as aircraft or trucks; the finance leasing rules apply to limited-use property as well.[12] The major drawback of using leasing to transfer tax subsidies is that the cost of negotiating and executing lease agreements limits the efficiency of the transfer.

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11 See Jane G. Gravelle, *Safe Harbor Leasing Under the Economic Recovery Tax Act of 1981 and Investment Efficiency*, Congressional Research Service, May 12, 1982, for a full analysis of the effects of safe harbor leasing and how tax losses affect asset returns.

12 Multiple-use property is property that can be transferred and readily used by other owners; limited-use property is basically property fixed in place that cannot be easily transferred.

Two ways other than leasing to neutralize the effect of tax-loss asymmetries are to allow full refundability of tax losses and credits, or to permit tax losses to be carried over into future years with interest. Both options would preserve the pattern of tax rates and returns across assets that would prevail if all firms made full and immediate use of all tax credits and deductions.[13]

Alternatively, the subsidies embodied in the tax code could be eliminated--that is, firms would be allowed be indexed economic depreciation and no investment credits--and capital subsidies could be provided through direct spending. Under such an approach, the Congress could replace tax incentives with a system of broad capital grants to all industries, or target grants to certain activities or industries.[14] The Congress might also consider replacing specific tax incentives with a broad reduction in corporate tax rates.

## Interest Deductibility, Inflation, and Personal Taxes

In the tax rate calculations presented in Tables 9 and 10, two assumptions are made: that the assets are equity-financed and that there are no personal income taxes. But the fact that interest is deductible at the corporate level, and is taxable at the recipient level can have significant effects on the calculations. To the extent that lenders are in lower tax brackets than the borrowing corporations, the potential total tax burden on corporate capital can be reduced by increasing the amount of debt finance. For example, if the lender is in the 30 percent tax bracket, interest income will be taxed at 30 percent but will be deducted at the corporate level at the rate of 46 percent. In a sense, the corporation can shift taxable income from the corporate to the personal level by borrowing, thereby reducing the overall tax rate on income earned in the corporate sector. As one study has shown, this tax base shifting can have large negative effects on corporate

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13 It should be noted that if the Congress were to move to a cash-flow type tax for corporations under which all investment expenditures would be immediately deducted, the asymmetric treatment of tax losses might pose even greater problems than under the current system.

14 This would raise the political and administrative problem of choosing appropriate industries for subsidy.

taxes, especially if the lending is done by low-tax-rate entities such as tax-exempt institutions or pension funds.[15]

The shifting of the tax base can be exacerbated by the interaction of debt finance and inflation. Because nominal interest payments are deductible at the corporate level and taxable at the individual level, the ability to shift the tax base is greater than if only real interest payments were deductible. Nominal interest payments include an inflation premium that might better be characterized as a repayment of principal rather than interest. Because nominal interest rates rise with inflation, the amount of interest deducted increases systematically with inflation, even if the real amount of borrowing remains the same. For a given debt-equity ratio, increases in inflation tend to lower the tax on income in the corporate sector, assuming lenders are in lower tax brackets than corporate borrowers.

These effects are illustrated by the tax rate calculations shown in Table 11. The three panels show effective tax rates on selected assets for different debt shares under assumed inflation rates of 2 percent, 6 percent, and 9 percent. These are not simply corporate rates, but are combined corporate and personal tax rates. For the purposes of this table, it is assumed that lenders (bondholders) and stockholders are both in the 30 percent tax bracket. It is also assumed that the equity-financed portion of each investment is made from retained earnings; no new shares are issued.[16] The tax calculations show that effective tax rates decline as the debt-financed portion increases. For example, at 2 percent inflation, the tax rate of general industrial equipment falls from -20.4 percent with no debt to -72.9 percent with 80 percent debt financing; at 6 percent inflation, the tax rate declines from 9.8 percent to -60.4 percent.

The tax rates are higher at higher rates of inflation, in most cases. For example, in Table 11 the tax rate on general industrial equipment is -43.4 percent at 2 percent inflation and 40 percent debt compared to -10.8 percent at 9 percent inflation. As shown previously, inflation tends to reduce the real value of depreciation allowances. This effect is offset in

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15 Mervyn A. King and Don Fullerton, *The Taxation of Income from Capital: A Comparative Study of the United States, The United Kingdom, Sweden, and West Germany* (Chicago, Illinois: University of Chicago Press, 1984).

16 This assumption is important. Retained earnings are a cheaper source of finance than new issues because retained earnings are "pretax" dollars (that is, before the dividend tax on distributions), whereas new issues are purchased with more expensive "post-tax" dollars.

TABLE 11. OVERALL EFFECTIVE TAX RATES UNDER ALTERNATE DEBT AND INFLATION ASSUMPTIONS

| Asset Class | Economic Depreciation Rate | ACRS Class (years) | Percentage Debt-Financed | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0 | 20 | 40 | 60 | 80 |
| | | | **Inflation = 2 Percent** | | | | |
| Automobiles | 33.33 | 3 | -50.9 | -64.5 | -79.8 | -97.1 | -116.9 |
| Computers | 27.29 | 5 | -71.6 | -87.1 | -104.5 | -124.1 | -146.6 |
| Aircraft | 18.33 | 5 | -36.9 | -49.2 | -63.1 | -78.8 | -96.7 |
| General Industrial Equipment | 12.25 | 5 | -20.4 | -31.2 | -43.4 | -57.2 | -72.9 |
| Electric Machinery | 11.79 | 5 | -19.3 | -30.0 | -42.1 | -55.8 | -71.4 |
| Engines and Turbines | 7.86 | 10 | 13.9 | 6.1 | -2.6 | -12.5 | -23.8 |
| Electric Light and Power | 3.00 | 15[a] | 15.3 | 7.6 | -0.9 | -10.6 | -21.7 |
| Industrial Buildings | 3.61 | 18 | 39.8 | 34.4 | 28.3 | 21.4 | 13.5 |
| Commercial Buildings | 2.47 | 18 | 36.6 | 30.9 | 24.4 | 17.2 | 8.9 |
| | | | **Inflation = 6 Percent** | | | | |
| Automobiles | 33.33 | 3 | -1.1 | -17.4 | -35.7 | -56.3 | -79.9 |
| Computers | 27.29 | 5 | 4.5 | -10.9 | -28.2 | -47.7 | -70.0 |
| Aircraft | 18.33 | 5 | 7.7 | -7.1 | -23.8 | -42.6 | -64.2 |
| General Industrial Equipment | 12.25 | 5 | 9.8 | -4.7 | -21.0 | -39.4 | -60.4 |
| Electrical Machinery | 11.79 | 5 | 10.0 | -4.5 | -20.8 | -39.2 | -60.2 |
| Engines and Turbines | 7.86 | 10 | 34.0 | 23.4 | 11.4 | -2.1 | -17.5 |
| Electric Light and Power | 3.00 | 15[a] | 30.4 | 19.2 | 6.7 | -7.6 | -23.8 |
| Industrial Buildings | 3.61 | 18 | 50.3 | 42.4 | 33.4 | 23.2 | 11.6 |
| Commercial Buildings | 2.47 | 18 | 47.0 | 38.5 | 29.0 | 18.1 | 5.8 |
| | | | **Inflation = 9 Percent** | | | | |
| Automobiles | 33.33 | 3 | 19.9 | 2.2 | -17.6 | -40.1 | -65.7 |
| Computers | 27.29 | 5 | 28.7 | 12.9 | -4.7 | -24.8 | -47.6 |
| Aircraft | 18.33 | 5 | 26.3 | 10.0 | -8.3 | -29.0 | -52.6 |
| General Industrial Equipment | 12.25 | 5 | 24.5 | 7.9 | -10.8 | -32.0 | -56.2 |
| Electrical Machinery | 11.79 | 5 | 24.4 | 7.7 | -11.0 | -32.2 | -56.4 |
| Engines and Turbines | 7.86 | 10 | 43.6 | 31.2 | 17.2 | 1.4 | -16.7 |
| Electric Light and Power | 3.00 | 15[a] | 38.5 | 24.9 | 9.7 | -7.6 | -27.3 |
| Industrial Buildings | 3.61 | 18 | 55.8 | 46.0 | 35.0 | 22.6 | 8.5 |
| Commercial Buildings | 2.47 | 18 | 52.6 | 42.1 | 30.3 | 17.0 | 1.8 |

SOURCE: Congressional Budget Office.

NOTE: Calculations assume a 4 percent real return earned by corporations after corporate taxes, but before personal taxes. The tax rates are derived according to equations shown in Alan J. Auerbach, "Corporate Taxation in the United States," *Brookings Papers on Economic Activity 1983:2* (Washington, D.C.: The Brookings Institution, 1984), pp. 485-490.

a. 15-year public utility property, subject to the 10 percent investment tax credit.

part by interest deductibility, which allows more of the tax base to be shifted at higher inflation rates. In fact, at the 80 percent debt share, the effective tax rate on both industrial and commercial buildings is actually reduced by higher inflation. The tax rate on industrial buildings falls from 13.5 percent at 2 percent inflation (80 percent debt-financed) to 8.5 percent at 9 percent inflation; the tax rate on commercial buildings falls from 8.9 percent to 1.8 percent. In these cases, the tax-base-shifting effect of interest deductibility more than compensates for the reduced value of depreciation allowances. These results demonstrate that inflation may reduce the tax burden on some corporate capital once account is taken of debt finance.[17] As these results hinge critically on assumptions as to marginal debt-equity ratios and lender tax rates, it is difficult to measure with confidence the overall effect of inflation on the taxation of capital in the corporate sector.

The calculations in Table 11 ignore any costs that may be associated with greater debt shares, such as greater risk premiums. Moreover, they do not take account of the greater possibility of bankruptcy at higher debt-equity ratios. Hence, the table overstates the actual advantage gained by issuing more debt to finance assets. In large part, this would depend on the riskiness of the underlying assets and the industry they are employed in.

Since debt leverage appears to reduce the effective tax rates on corporate fixed assets, those assets that can more easily be leveraged may be relatively favored by the provision for interest deductibility. For example, assets that can be resold easily, such as automobiles, aircraft, or office buildings, may be considered less risky by lenders, and therefore may be more highly leveraged than others. This may be especially important for commercial property (office buildings, shopping malls) that can be highly leveraged, thereby substantially reducing the effective tax rate. For this reason, the earlier tables may overstate the tax variation between equipment and buildings. By contrast, industrial buildings, such as automobile plants or steel mills, may be at a relative disadvantage.[18]

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17 Also see Don Fullerton and Yolanda Kodrzycki Henderson, "Incentive Effects of Taxes on Income from Capital: Alternative Policies in the 1980s," in Charles R. Hulten and Isabel V. Sawhill, eds., *The Legacy of Reaganomics, Prospects for Long-Term Growth* (Washington, D.C.: Urban Institute, 1984), pp. 45-89.

18 An asset with multiple users may be less risky because it can be easily sold if the borrower defaults. This compares to assets with a single use, such as a refinery, that may have only a few alternative users in the same industry.

The ability to leverage assets is probably more important in the noncorporate sector. For example, limited partnerships in real estate typically rely heavily on debt to finance their properties. These loans are usually tied directly to the specific assets in question, and not to a borrower's personal assets. Corporations, however, do not usually borrow specifically against certain assets, but against the assets of the corporation in general. Hence, all assets in a corporation, from trucks to buildings, take on the same leverage ratio as the corporation as a whole. As Table 11 shows, at any given debt share, the tax rates on equipment remain much lower than those on buildings at all three expected inflation rates.

## The Investment Tax Credit

The investment tax credit (ITC) is an important factor in the calculation of effective tax rates for equipment, machinery, and public utility property; industrial and commercial buildings, however, are unaffected as they do not qualify for the credit. The importance of the credit is shown in Table 12. The third column shows effective tax rates under current law based on a 6 percent expected inflation rate, and the fourth column shows what would happen to them if the ITC were repealed. Without the ITC, all equipment and machinery tax rates would rise substantially, changing from below zero to above 30 percent. In the case of computers, the effective tax rate (51.4 percent) would be higher than the statutory rate of 46 percent. The tax rates on public utility property would also rise, but not so dramatically. The tax rates on buildings would remain unchanged, since they are not affected by the credit.

The table also shows three alternative ways of changing the ITC so that it would have a more neutral effect. Repeal of the ITC would bring the tax rates on equipment and machinery closer to or higher than those on buildings. This indicates that a major source of the differential tax rates under current law is the investment tax credit. Although ACRS allows deductions in excess of economic depreciation for most assets, it does not have nearly the effect of the ITC in reducing asset tax rates.[19] In the case of computers, the ACRS deductions are less than those associated with economic depreciation at 6 percent inflation, which is why the effective tax rate exceeds the 46 percent statutory rate. As the variance in tax rates is

19 The comparison between economic depreciation and ACRS depends on the rate of inflation that is assumed; in this case, it is 6 percent. At lower rates of inflation, the value of ACRS grows relative to economic depreciation, and vice versa.

TABLE 12. EFFECT OF THE INVESTMENT TAX CREDIT ON ASSET TAX RATES

| Asset Class | Economic Depreciation Rate | ACRS Class (years) | Current Law | Repeal ITC | Require Full Basis Adjustment | Extend ITC to Buildings[a] |
|---|---|---|---|---|---|---|
| | | | **Effective Tax Rates** | | | |
| Automobiles | 33.33 | 3 | -19.0 | 39.7 | 5.6 | 26.4 |
| Computers | 27.29 | 5 | -12.4 | 51.4 | 14.5 | 30.4 |
| Aircraft | 18.33 | 5 | -8.5 | 43.0 | 10.8 | 23.7 |
| General Industrial Equipment | 12.25 | 5 | -6.1 | 35.5 | 8.1 | 18.5 |
| Electrical Machinery | 11.79 | 5 | -5.9 | 34.8 | 7.9 | 18.0 |
| Engines and Turbines | 7.86 | 10 | 22.3 | 42.8 | 27.3 | 27.3 |
| Electric Light and Power | 3.00 | 15[b] | 18.1 | 33.2 | 21.3 | 21.3 |
| Industrial Buildings | 3.61 | 18 | 41.6 | 41.6 | 41.6 | 31.0 |
| Commercial Buildings | 2.47 | 18 | 37.7 | 37.7 | 37.7 | 27.7 |
| | | | **Required Real Pretax Rates of Return** | | | |
| Automobiles | 33.33 | 3 | 3.4 | 6.6 | 4.2 | 5.4 |
| Computers | 27.29 | 5 | 3.6 | 8.2 | 4.7 | 5.7 |
| Aircraft | 18.33 | 5 | 3.7 | 7.0 | 4.5 | 5.2 |
| General Industrial Equipment | 12.25 | 5 | 3.8 | 6.2 | 4.4 | 4.9 |
| Electrical Machinery | 11.79 | 5 | 3.8 | 6.1 | 4.3 | 4.9 |
| Engines and Turbines | 7.86 | 10 | 5.2 | 7.0 | 5.5 | 5.5 |
| Electric Light and Power | 3.00 | 15[b] | 4.9 | 6.0 | 5.1 | 5.1 |
| Industrial Buildings | 3.61 | 18 | 6.8 | 6.8 | 6.8 | 5.8 |
| Commercial Buildings | 2.47 | 18 | 6.4 | 6.4 | 6.4 | 5.5 |

SOURCE: Congressional Budget Office.

NOTE: All calculations are based on a required after-tax real rate of return of 4 percent, an expected inflation rate of 6 percent, and 100 percent equity financing.

a. In this case, the ITC is 3 percent for three-year property, 7 percent for five-year property, and 10 percent for public utility property and buildings. A 100 percent basis adjustment is required.

b. 15-year public utility property, subject to the 10 percent investment tax credit.

much lower without the ITC, repealing the ITC might reduce the tax distortions between alternative assets in the corporate sector.

At present, businesses must reduce their depreciation allowances by 50 percent of the ITC related to an asset--the so-called 50 percent basis adjustment. In the case of five-year property, depreciation is reduced by 5 percent because the property is eligible for the 10 percent ITC. The fifth column of Table 12 shows the effect on asset tax rates of a 100 percent basis adjustment, in which depreciation allowances would be reduced by the full amount of the credit. This would raise asset tax rates on machinery and equipment and somewhat reduce the variation across assets. Tax rates on three-and five-year property would remain well below the rates on buildings.

The last column of Table 12 shows what would happen to effective tax rates if the ITC was extended to buildings, but reduced (though not eliminated) for equipment and machinery. In this example, the ITC is 3 percent for three-year property, 7 percent for five-year property, and 10 percent for public utility property and buildings. A 100 percent basis adjustment is required. The effective tax rates on all equipment and machinery are increased, and those on buildings reduced. Unlike the fourth column, where the ITC is assumed to be repealed, all effective asset tax rates remain well below the 46 percent statutory rate. Since the variation in tax rates is also substantially lessened, the tax distortions among asset types are likely to be less severe than under current law.

In sum, the examples in Table 12 illustrate the powerful effect of the ITC on effective asset tax rates. They show that the current ITC is a primary factor in the variation among tax rates for different types of assets and that changes in the ITC could significantly reduce this variation, while at the same time providing an investment incentive. As long as depreciation remains tied to historical cost, however, the effective tax rates and their variance will remain sensitive to the expected rate of inflation.

## SPECIFIC INDUSTRY INCENTIVES

In addition to the current general investment subsidies (ACRS and the investment tax credit), the Congress has provided investment subsidies that are intentionally targeted toward specific assets and activities. These may cause capital to be reallocated from more productive to less productive

uses. The merits of such subsidies depend on whether the social benefits they produce outweight their costs.[20]

Tax Expenditures as Substitutes for Direct Spending

Investment subsidies can be made directly or indirectly. Tax expenditures--subsidies provided through the tax system--serve as alternatives for direct spending programs. The R&E tax credit, for example, could have been designed as an outlay program under the jurisdiction of the Commerce Department, instead of as a credit administered by the IRS. The extent to which the tax system has been used for this purpose can be seen in Table 13, which lists several major corporate tax expenditures and their annual revenue losses for 1985-1987.

Subsidies (whether direct outlays or tax expenditures) tend to reallocate the capital stock, with the efficiency costs already mentioned. Because these costs are difficult to measure, they are sometimes not explicitly recognized as the costs of pursuing certain policies. They may be outweighed by the benefits achieved by the policies, such as increased knowledge and information or reduced dependence on foreign oil or fossil fuels that pollute. To the extent that this is so, government subsidies for various activities may be justified as a way of promoting economic efficiency. There are several disadvantages, however, in using the tax system as the means through which subsidies are provided. These include the dilution of incentives that results from the proliferation of special tax provisions, difficulties in extending tax subsidies to firms that have tax losses, problems of administrative control and review, and problems of predictability and stability.[21]

Dilution of Incentives. As tax incentives have been extended to a wider range of activities, the economic effect of each individual incentive has been diluted. For example, the comparative advantage of expensing intangible drilling costs was much reduced by the passage of ACRS, which

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20 For example, subsidies for pollution control facilities may result in a more efficient use of capital since companies would tend to underinvest (from a social standpoint) in pollution control without such subsidies.

21 For a detailed discussion of the advantages and disadvantages of using the tax system to provide subsidies, see CBO, *Tax Expenditures: Current Issues and Five-Year Budget Projections for Fiscal Years 1982-1986* (September 1981), pp. 46-63.

TABLE 13. MAJOR TAX EXPENDITURES AFFECTING CORPORATIONS (By fiscal year, in billions of dollars)

| Provision | 1985 | 1986 | 1987 |
|---|---|---|---|
| Expensing of Research and Development Activities | 3.1 | 3.2 | 3.3 |
| Credit for Increasing Research | 1.7 | 1.0 | 0.5 |
| Expensing of Exploration and Development Costs | | | |
| Oil and gas | 1.1 | 1.4 | 1.6 |
| Other fuels and nonfuels | 0.1 | 0.1 | 0.1 |
| Excess of Percentage Over Cost Depletion | | | |
| Oil and gas | 0.3 | 0.3 | 0.3 |
| Other fuels and nonfuels | 0.7 | 0.8 | 0.9 |
| Alternative Fuel Production Credit | a | a | a |
| Alternative Energy Credits | | | |
| Supply incentives | 0.2 | 0.1 | a |
| Capital Gains Treatment of Certain Timber Income | 0.5 | 0.6 | 0.6 |
| Depreciation on Buildings Other Than Rental Housing in Excess of Straight-Line | 0.2 | 0.2 | 0.3 |
| Accelerated Depreciation on Equipment Other Than Leased Property | 18.9 | 18.0 | 15.0 |
| Capital Gains Other Than Agriculture, Timber, Iron Ore and Coal | 2.5 | 2.8 | 3.0 |
| Reduced Rates on the First $100,000 of Corporate Income | 7.6 | 8.7 | 9.4 |
| Regular Investment Tax Credit | 29.4 | 32.6 | 34.9 |
| Investment Credit for Rehabilitation of Structures, Other Than Historic Structures | 0.2 | 0.2 | 0.3 |
| Tax Credit for ESOPs | 2.3 | 3.1 | 3.6 |

SOURCE: Joint Committee on Taxation, Estimates of Federal Tax Expenditures for Fiscal Years 1984-1989 (November 9, 1984).

a. Less than $50 million.

effectively allows expensing of three- and five-year property. Economic incentives are also significantly reduced or eliminated for companies that have so many credits or deductions that their current and prospective tax liabilties are largely canceled out. More generally, each new subsidy dilutes the effectiveness of all previous subsidies. In the extreme, if every activity were to be subsidized equally, the result would be basically equivalent to having no subsidies at all.

Nontaxable Firms. Another problem with current tax subsidies is that they are not refundable and are not fully realizable by firms without taxable income. As a result, tax subsidies are not distributed evenly among firms or activities. By contrast, an equivalent outlay program would presumably provide an equal subsidy to all eligible firms, regardless of their tax status. Two possible ways of resolving this problem are to make credits and losses refundable or to allow loss carryovers with interest.

Visibility and Review. In the past, tax expenditures have not been as "visible" as other spending programs, nor have they been reviewed as regularly. This situation has changed in recent years, with a major review of the tax code having occurred almost every year. In addition, the Congress has placed termination dates ("sunsets") on many new tax subsidy programs, such as the alternative energy and R&E credits, to ensure that a review occurs before they are continued.

A major drawback of tax expenditures is that their costs are hard to control since, unlike more clearly defined programs, they are available to all who qualify and who choose to take advantage of them. Their cost also fluctuates with economic conditions.

Predictability and Stability. A subsidy in the form of a tax expenditure that is not frequently revised allows taxpayers to plan their investments with a high degree of certainty. Since many corporate tax subsidies relate to investments that yield returns in future years, it is important for firms to have a reasonable expectation of whether or not a subsidy will be continued. It is difficult, for example, to compare alternative long-term investments in housing when federal housing programs are constantly fluctuating. To the extent that tax provisions have historically been less subject to periodic change than outlay programs, taxpayers may feel more secure in choosing among alternative investments.[22] The benefits of stability and predictabil-

22 But since the tax code has undergone many significant changes in the last few years, it is not obvious that the system is any more stable than the spending side of the budget.

ity in encouraging investment must therefore be balanced against the Congress's need to maintain budgetary control and to respond to changing economic circumstances.

## Administrative Considerations

The provision of subsidies through the tax system requires the IRS to take on the role of an administering agency. Administration by the IRS of general tax subsidies may be much cheaper than establishing a separate government bureaucracy, since the IRS deals with all corporations as part of its regular responsibility. On the other hand, it does not audit tax practices with the same intensity as direct spending programs. And the IRS may not be the best agency to handle subsidies for specific activities where complex eligibility rules are required, such as the incremental R&E credit. For example, the Department of the Interior already must certify buildings as historic for purposes of the historic rehabilitation tax credit; the Department could administer the program by itself in the form of a direct subsidy, without involving the IRS. Also, as the tax code becomes more complex, the capacity of the IRS to enforce the tax laws is reduced unless the Congress provides corresponding increases in its budget.

The use of the tax system to provide subsidies also makes the overall tax system more complex. As the system departs from its main purpose as a revenue-raiser, the variation of tax burdens among firms and industries may give rise to perceptions that the system is unfair. Taxpayers are also encouraged to redefine their activities solely for tax purposes, even if their economic behavior has not changed.

CHAPTER VI

# NEW DIRECTIONS IN CORPORATE TAX POLICY

The basic goal of the tax system is to raise a certain amount of revenue as simply, fairly, and efficiently as possible. As the previous chapters have shown, however, considerable doubt exists as to whether the corporate income tax in its present form meets these criteria. Several major reforms have been proposed that range from repealing the tax altogether to significantly broadening its base.

## THE ISSUE OF TAXING CONSUMPTION

Any change in the design of the corporate tax in the present federal system will depend on whether changes are made in the personal income tax. One fundamental question is whether the tax base of the federal system should be defined by income or consumption. The present personal tax system has been so radically altered over the years that it now taxes some income when earned and some when consumed. One writer characterizes the individual income tax as "a progressive wage tax, accompanied by a penalty tax on the realization of a modest amount of nominal income from capital, and a subsidy for borrowing."[1] The transition from the current tax system to one based purely on consumption would not be nearly so rough a passage as might first appear; it might be less difficult than the transition back to a truely broad-based income tax.

The fundamental difference between income or consumption as a basis for taxation lies in the treatment of the returns to saving. An income-based tax treats interest, dividends, capital gains, rents, and other capital income the same as wages, salaries, and other labor income. A consumption-based tax would effectively exclude all capital income from taxation. There are other differences, such as in the timing of tax payments, but the essential

1 Eugene Steuerle, "Is Income From Capital Subject to Individual Income Taxation?," *Public Finance Quarterly*, vol. 10 (July 1982), p. 300.

distinction is that the consumption-based tax would not tax income from saving.

This difference can be most easily shown by a simple example. Suppose that a taxpayer lives two years; in the first, he or she is employed and earns $10,000, but in the second is retired and earns no labor income. Assume that the person decides to consume 60 percent of his or her labor income (after-tax) in the first year, and the remainder (plus any interest) in the second year. (For the moment, assume no bequest is left.) The market interest rate is assumed to be 10 percent, so that in a world without taxes the person can consume $6,000 in the first year and $4,400 in retirement.

Under an income tax with a proportional rate of 20 percent, the taxpayer would owe taxes of $2,000 in the first year, leaving $8,000 in after-tax income. The taxpayer consumes 60 percent ($4,800) of this amount and saves the remainder ($3,200). In the second year, he or she pays taxes of $64 on interest income of $320, and consumes $3,456 ($3,200 + $320 - $64) in retirement. Since the tax is an income tax, it imposes a tax on capital income (interest) and reduces the net interest rate received by the saver from 10 percent to 8 percent.

Under a consumption tax, by comparison, if the taxpayer decides to consume the same amount during the first year, a 20 percent tax would collect $1,200 (on consumption of $6,000), leaving the individual with $4,800 in after-tax consumption. In the second year, it would collect $880 in tax (on gross consumption of $4,400).[2] The consumption tax does not impose a direct tax on interest earnings as the income tax does; it imposes a tax when those earnings are spent. Even though interest is taxed when it is consumed, the tax does not change the after-tax rate of return earned by savers; in effect, interest income is tax-exempt. In the example, the taxpayer saves $4,000 in the first year, consisting of $3,200 of actual saving and $800 in tax savings (the tax that would have been paid, had the $3,200 been spent instead of saved). The $4,000 earns 10 percent interest, generating total resources of $4,400, which is enough to enable the taxpayer to repay the tax savings from the first year (with 10 percent interest) and consume $3,520. The $3,200 in actual savings in the first period allows the taxpayer to consume $3,520 in the second year, yielding a return of 10 percent--the same as the market rate of interest. This demonstrates that a proportional consumption tax does not impose a net tax burden on interest income.

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2 In explanation, the $880 in tax plus $3,520 in net consumption equals $4,400, the total resources available for consumption and taxes in the second year. The total of $4,400 comes from $4,000 in saving during the first year ($10,000 - $6,000) plus interest earned of $400.

Support has been growing among economists and policymakers for using consumption instead of income as the principal basis for taxation. One proposal (H.R. 1165) introduced by Representative Cecil Heftel would tax individuals on their "cash flow" as opposed to their annual income--the difference being that a cash flow tax would allow a deduction for income saved. The Heftel proposal would differ from a single-rate sales tax in that it would tax people's cash flow at graduated rates.

## Advantages of a Consumption-Based Tax

Those who favor the use of consumption instead of income as the basis for taxation cite economic efficiency and equity, as well as administrative advantages. The basic advantages and disadvantages of taxing consumption instead of income are set forth in CBO's *Revising the Individual Income Tax* and in the Treasury's *Blueprints for Basic Tax Reform*, as well as in other studies.[3]

Economic Efficiency. The consumption tax base is viewed as more efficient because it does not bias the decision whether to consume one's income now or sometime in the future. The income base, on the other hand, taxes the return to saving and thus interferes with individual choices about saving and consumption. As shown in the above example, the income tax lowers the interest rate (after taxes) received by savers from 10 percent to 8 percent--the lower rate could affect individual saving decisions. The consumption tax does not reduce the net after-tax return to saving. Some proponents of consumption taxes argue that, if savings are protected from taxation, people will save more--thus increasing capital formation and enhancing productivity.

The economic gains from moving to a consumption tax remain uncertain at this point. Economists disagree as to the size of such gains, and some believe there may even be efficiency losses. One study estimated

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3. Among these are: Institute for Fiscal Studies, *The Structure and Reform of Direct Taxation* (London: George Allen and Unwin, 1978); Joseph A. Pechman, ed., *What Should Be Taxed: Income or Expenditure?* (Washington, D.C.: Brookings Institution, 1980); and William D. Andrews, "A Consumption-Type or Cash Flow Personal Income Tax," *Harvard Law Review*, vol. 67 (April 1974), pp. 1113-1188.

an efficiency gain of 2 percent to 3 percent of national income.[4] Another estimated the efficiency cost of the income tax relative to an equal-yield consumption tax at about 1.9 percent of "initial net labor income," even if savings do not respond at all to changes in the after-tax return received by savers.[5] Other studies have also shown efficiency gains from moving from an income to a consumption tax.[6]

Efficiency gains may be offset by losses of several kinds. Two important considerations relate to foreign investment and to the way the transition is handled. The reduction in taxes on capital income could result in a reduction in taxes paid by foreign investors in the United States. In addition, if increases in domestic savings were invested abroad, the gains from the consumption tax could be reduced because foreign governments would have first claim on the income generated by that investment. In effect, the foreign government would gain at the expense of the Treasury, because a tax credit would be paid for foreign taxes. One study has shown that these foreign considerations could be important enough to turn an efficiency gain into a loss.[7]

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4 Don Fullerton, John B. Shoven, and John Whalley, "Replacing the U.S. Income Tax with a Progressive Consumption Tax," *Journal of Public Economics*, vol. 20 (February 1983), pp. 19-23.

5 Martin Feldstein, "The Welfare Cost of Capital Income Taxation," *Journal of Political Economy* (April 1978), pp. S46.

6 Michael T. Allison, Don Fullerton, and John H. Makin, in *Tax Reform: A Study of Some Major Proposals*, AEI Working Paper No. 2 (February 1985); Dale W. Jorgenson and Kun-Young Yun, in *Tax Policy and Capital Allocation*, Harvard Institute of Economic Research Working Paper No. 1107 (November 1984); and Alan J. Auerbach, Laurence J. Kotlikoff, and Jonathan Skinner, in "The Efficiency Gains from Dynamic Tax Reform," *International Economic Review*, vol. 24 (February 1983), pp. 81-100, report sizable gains from switching to a pure consumption tax.

7 Lawrence H. Goulder, John B. Shoven, and John Whalley, "Domestic Tax Policy and the Foreign Sector: The Importance of Alternative Foreign Sector Formulations to Results from a General Equilibrium Tax Analysis Model," in Martin Feldstein, ed., *Behavioral Simulation Models in Tax Policy Analysis* (Chicago: University of Chicago Press, 1983).

Transition provisions would play an important role in determining the efficiency effects of a consumption tax. Much would depend on whether consumption tax rules applied only to new capital accumulation or were extended to both existing and new capital. To make up for lost revenue, the consumption tax would have to be set at much higher rates if all capital was exempted from taxation than if only new capital was exempted. If all old capital was made tax-exempt, the increase in tax rates required to maintain revenues might be sufficient to turn an efficiency gain into an efficiency loss because of adverse effects on the incentive to work.

The consumption tax may be characterized as a simple income tax on wages and, during the transition period, a one-time levy on existing capital. The equivalence between a consumption tax and a wage tax can be shown by the example used above. If a 20 percent wage tax was levied instead of a consumption tax, the taxpayer would pay $2,000 in tax in the first year and no tax in the second year. This compares to the consumption tax amounts of $1,200 in the first year and $880 in the second year, for a total of $2,080. In present-value terms, the two taxes are equal, since the $2,080 in consumption taxes is equivalent to $2,000 (the same amount as the wage tax) when discounted at 10 percent. At higher consumption tax rates, the effective tax on labor earnings is also higher.

To see what would happen during the transition, assume that a 20 percent income tax exists in the first year and is replaced by a consumption tax in the second year. The taxpayer will pay income taxes of $2,000 in the first year and accumulate $3,200 in savings (the same as before). If this full amount is then taxed as consumption (at a 20 percent rate) in the second period, he or she will owe $704 in tax (and consume $2,816 after tax), instead of $64.[8] Thus, if no deduction is allowed for accumulated savings, a consumption tax will impose a large one-time levy on preexisting saving--in this case, $640 ($704 - $64). This extra levy could be used to reduce the consumption tax rate while still raising the same amount of revenue as under the income tax. By contrast, if a deduction is allowed for all existing saving, consumption tax rates will have to be higher, with greater tax labor market distortions resulting. In the example, a deduction for existing savings would result in a tax reduction of $64--the taxes that would be owed on interest under the income tax. Higher consumption (and labor) tax rates would therefore be required to maintain revenue neutrality. In this case, the consumption tax approximates a wage tax but with no one-time levy on existing wealth.

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8 That is, $704 in tax plus $2,816 in consumption equals $3,520--the sum of $3,200 in saving and $320 in interest.

In evaluating the relative efficiency gains of moving to a consumption tax, the potential gain or loss hinges critically on how existing wealthholders are treated during the transition. Several of the studies made to evaluate the efficiency of consumption taxes have assumed that no deduction would be allowed for existing wealth, resulting in lower tax rates because of the one-time wealth levy. If, instead, the income tax was replaced with a wage tax (that is, no levy was imposed on existing capital), an overall efficiency loss could result because of higher tax rates needed to maintain government revenues.[9]

Equity. The consumption tax may also be viewed as being more equitable than the income tax, when viewed over an individual's lifetime.[10] To be more equitable in the context of a person's lifetime capacity to consume, it would have to tax gifts and bequests as consumption. In general, this would ensure that people with the same lifetime capacity to consume would pay the same amount in tax, regardless of their year-to-year patterns of consumption. This type of consumption tax could be termed a "lifetime income tax."

In the current system, people with the same initial wealth (or inheritance) and labor earnings (in present-value terms) over their lifetimes can pay substantially different amounts under a proportional income tax whereas under a proportional consumption tax they would pay the same amount (in present value). In this context, "ability to pay" is defined as the taxpayer's lifetime capacity to consume, not as yearly income. Because the current tax system defines income on an annual basis, a thrifty person pays more in tax over a lifetime than one who spends more of current income. This is true even if both earn the same amount of labor income each year.

The bias in the income tax against saving can be shown in the example above by increasing first-year consumption (reducing saving) from $4,800 to $5,600. The tax paid in the first period would be the same $2,000, but the tax in the second period would be reduced from $64 to $48. Simply by increasing their current consumption, taxpayers can reduce the taxes they pay. The consumption tax does not have this feature. If the taxpayer increases his or her after-tax consumption from $4,800 to $5,600 in the first

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9 See Auerbach, Kotlikoff, and Skinner, "The Efficiency Gains from Dynamic Tax Reform."

10 Henry J. Aaron and Harvey Galper, "Reforming the Tax System," in Alice M. Rivlin, ed., *Economic Choices 1984* (Washington, D.C.: Brookings Institution, 1984).

year, his or her taxes rise from $1,200 to $1,400 that year but decline from $880 to $660 in the second year. In both cases, the present value of taxes (discounted at 10 percent) equals $2,000; therefore, the consumption tax appears to be more equitable within the framework of lifetime taxation.

The lifetime capacity (ability) of a person to consume can be measured in present-value terms. According to some, this should constitute the basis upon which taxes are levied, not annual income.[11] In the example, the present value of consumption plus taxes equals $10,000 (consumption alone equals $8,000) and this is invariant no matter when consumption occurs over a lifetime. (This is apparent from the fact that the present value of taxes is invariant, as shown above.) But if the taxpayer is allowed to leave a bequest that is not considered consumption, the invariance proposition breaks down: the present value of consumption, and therefore taxes, will decline in direct relation to the size of the bequest. For example, if the person in the example left a bequest of $500, and the bequest was excluded from the tax base, the present value of taxes would decline by $91 to $1,909, even though the person's lifetime capacity to consume had not changed. If the basis of taxation is to be defined as the capacity to consume over a lifetime, bequests (and gifts) must be included in the consumption tax base in order to equalize tax burdens for people with the same lifetime capacity.

Administration. Another advantage of a pure consumption tax is that it avoids the severe measurement difficulties that the income tax encounters in calculating capital income. These difficulties include the need to index assets and liabilities for inflation, to estimate economic depreciation of assets, and to value unrealized capital gains.[12] The current income tax invokes numerous ad hoc rules, in the name of simplicity, to allocate current capital (or prepaid) expenditures to future periods. These problems do not arise in regard to a consumption tax because it would rely primarily on current market transactions that are directly observed. This is why a consumption tax is sometimes referred to as a cash flow tax. From the standpoint of tax compliance, a consumption-type corporate tax would avoid many of the measurement difficulties that would arise under a comprehensive income tax.

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11 Ibid.

12 According to one commentator, the most serious problems of the comprehensive income tax arise in valuing and taxing accrued capital gains. William D. Andrews, "The Achilles' Heel of the Comprehensive Income Tax," in Charls E. Walker and Mark A. Bloomfield, eds., *New Directions in Federal Tax Policy for the 1980s* (Cambridge, Mass.: Ballinger Publishing, 1983), pp. 278-285.

## Advantages of the Income-Based Tax

Although many supporters of the income-based tax recognize that the current system has many problems, such as those related to the measurement of capital income or tax subsidies, they believe a broader-based income tax would ameliorate much of the public feeling that the current system is unfair.[13] They argue that the perceived unfairness of the tax system has to do with "loopholes" and "tax preferences" and does not relate to its conceptual basis. They rest their case on three main beliefs: that the annual income measure is more equitable than consumption, that a consumption tax would allow people to accumulate wealth tax-free, and that the transition to a consumption-based system would present insurmountable difficulties.

Equity. Those who favor the income tax argue that income is a fairer basis of taxation than consumption. Since income represents a person's accretion in power to consume, they argue, it is the best measure of the ability to pay taxes. The annual accounting basis currently in use for income taxation is well established; it is readily understood and accepted by the general public. While a consumption tax base might be equivalent to lifetime capacity to consume, some taxpayers might experience difficulties in years when their income was low relative to their consumption, as during college years or retirement. If people correctly anticipate their future lifetime income, they can make adjustments in their consumption over time; but unforeseen drops in their income (as from unemployment) can cause severe short-term cash problems in meeting a consumption tax's annual liability. An income tax generally does not impose such hardships since it varies along with swings in income.

Wealth Accumulation. Critics of the consumption tax also point out that the basic equivalence between lifetime capacity to consume and actual consumption would hold true only if wealth transferred as gifts or bequests was taxed as consumption; otherwise some income would escape taxation until it was consumed by future generations. Thus, some tax analysts argue that it would have to be accompanied by stronger estate and gift taxes. Others believe that this would be unlikely, since the Congress has reduced the estate and gift tax in recent years; they view the adoption of tighter estate and gift taxation as politically unlikely.

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13 For example, see Richard Goode, "Lessons From Seven Decades of Income Taxation," and Michael J. Graetz, "Can the Income Tax Continue to Be the Major Revenue Source?" both in Joseph A. Pechman, ed., *Options for Tax Reform* (Washington, D.C.: Brookings Institution, 1984).

Transition Problems. There would also be administrative and equity problems in moving to a consumption tax. The most difficult would be how to handle prior wealth accumulations. Would taxpayers be allowed to deduct immediately all their prior saving? If not, would they be taxed on consumption financed by this saving?

For example, taxpayers near retirement age have generally accumulated substantial assets that they expect to use in their retirement. A tax on such consumption would be a "double" tax if the assets had already been taxed as they were accumulated under the current income tax. This double taxation is viewed as unfair. On the other hand, if retirees were allowed to deduct some part of their assets upon imposition of the consumption tax, the deduction rules might be quite complex. If they were allowed to deduct all their prior saving, the resulting consumption tax rates might be so high as to wipe out potential efficiency gains from the new system.

## TOWARD A NEW CORPORATE TAX BASE

The remainder of this study discusses several proposed changes in the corporate tax, grouped according to whether they are consistent with an income or consumption base. Chapter VII examines changes that would bring the corporate tax more closely into line with the traditional income approach to taxation. Chapter VIII discusses integrating the corporate and the individual tax systems on an income base, while Chapter IX addresses the changes that would be necessary to arrive at a corporate consumption tax.

CHAPTER VII

# BROAD-BASED INCOME TAXATION

The corporate income tax could be modified in a number of ways so that its base would be more consistent with actual economic income, eliminating many of the present anomalies in the measurement of income. A simple definition of economic income is "accretion in power to consume" over the accounting period. For a person, this means actual consumption plus any increase (or decrease) in the value of what he or she owns. The latter is counted as income even if it is unrealized because it represents an amount that could potentially be consumed. In practice, calculating economic income would involve all labor compensation and cash received in the form of interest, dividends, or other investment returns plus any change in real net assets. Deductions would be allowed for the costs of earning income. Economic income is usually measured in monetary terms; the consumption of nonmonetary items, such as leisure, is not counted.

For a corporation, economic income is derived in the same way. It includes gross revenues plus any change in the real market value of net worth, less expenditures for current costs, such as wages and salaries, supplies, energy, or raw materials. Because cash receipts and expenditures are readily observable, this part of the calculation of income is relatively easy; calculating changes in a firm's net worth is much more difficult. Increases in a firm's worth include newly acquired capital goods, such as plant, machinery, or equipment, increases in the value of inventories, and increases in the value of financial assets. These increases are offset by new borrowing, sales of existing assets, or reductions in the value of existing financial or physical assets.

This definition of economic income has the following implications for measuring corporate taxable income:

- Expenditures for the acquisition of new assets do not represent costs and should not be deductible. Although outlays for new assets clearly are expenditures, they do not reduce economic income because they produce a one-for-one increase in the net

worth of the firm (this assumes that the value of the asset acquired equals its cost). This rule applies not only to expenditures for plant and equipment, but also to expenditures that produce other kinds of assets, such as research outlays that produce new products or drilling expenditures that result in new oil wells.

- The change in the real market of existing physical assets, which is usually a decrease because of economic depreciation, should be allowed as a deduction even though no cash is actually disbursed. From a practical standpoint, it is impossible to calculate the change in the market value of every asset, but ad hoc depreciation formulas can be used to approximate it. Purely inflationary changes in market values do not reflect real income, so depreciation allowances should be adjusted by an inflation index. Economic depreciation thus represents the decline in the market value of an asset over an accounting period, after its value at the beginning of the period has been restated in terms of the price level that prevails at the end of the period.

- The change in the real market value of financial assets and outstanding debt over a year should be included as income, even if no cash changes hands. Under current law such accrued gains or losses are not taxed, although they represent economic income. Since only real gains or losses constitute economic income (or loss), the basis for the computation should be indexed for inflation.

Tax reform proposals such as Bradley-Gephardt, Kemp-Kasten, and the Treasury's would significantly change the current measurement of business income for tax purposes. They would eliminate many investment subsidies in the current law, and would be consistent with the definition of economic income in many other ways. In moving toward a more comprehensive measure of business income, they would affect several major features of the present tax code; these include depreciation of plant and equipment, depletion of mineral properties, deductions for research and development expenditures, and accounting for inventories. Other significant changes include indexing the system for inflation, and changing the treatment of unrealized capital gains and losses from holdings of financial assets and liabilities.

## DEPRECIATION OPTIONS

In an ideal system, depreciation allowed for tax purposes would be the actual economic depreciation experienced by a firm. Depreciation allow-

ances would not be based on arbitrary allowances for "capital recovery," but would reflect the actual reduction in the value of productive capital due to physical deterioration, shifting product markets, or technical obsolescence. In practice, however, it is not possible to estimate the true economic depreciation of every asset; instead general accounting formulas must be used.

A major reason for instituting economic depreciation is to make the tax neutral across different types of assets. Unless the depreciation schedule reflects the fact that some assets last much longer and decline in value much more slowly than others, effective tax rates will vary substantially; corporate investment decisions will be distorted in favor of some assets and against others. Under a perfect system of economic depreciation, all equity-financed corporate assets would be taxed at the full statutory rate and there would be no incentive to shift investment around within the corporate sector for tax reasons alone. As shown in Chapter V, the present Accelerated Cost Recovery System (in combination with the investment tax credit) departs radically from the concept of economic depreciation, and results in widely varying effective tax rates. Several proposals have been made to change the current system of depreciation so that it would more closely reflect economic depreciation.

Constant-Rate Depreciation (CRD)

A more neutral depreciation system would be "constant-rate depreciation." The "2-4-7-10" depreciation proposal considered by the Senate Finance Committee in 1980, and the depreciation system proposed in the Bradley-Gephardt bill, are examples of constant-rate depreciation. It includes three basic features:

- Open-ended accounts. All assets in a given class are grouped together into a single account for tax purposes, regardless of their acquisition date. Each year the size of the account is increased by the cost of new asset acquisitions and decreased by the amount of depreciation deducted and the sale price (if any) of all assets sold or retired. The account is open-ended in the sense that assets are continually added to its balance as they are acquired. The account never "closes" unless all assets of that class are disposed of.

- Single depreciation rate. For assets in a given class, the depreciation expense for a given year is computed as the product of a single depreciation rate and the balance in the open-end depreciation account. Thus, regardless of their age, all assets in each class are

depreciated at the same percentage rate over their lifetimes. A single rate is determined for each class of asset; shorter-lived assets are entitled to a relatively higher rate than longer-lived assets. The depreciation rates are set so that the present value of the depreciation deductions approximately equals the present value of real economic depreciation. The depreciation expense for a given year is deducted annually from the balance in the open account.

- o Inflation adjustment. Because any dollar of depreciation is worth less (in real terms) during inflation, an adjustment is required so that the present value of tax depreciation keeps up with actual economic depreciation. One method of adjusting depreciation allowances is to increase annually the balance in each open-ended account by the change in prices in the economy. For this purpose, a general price-level index, such as the GNP deflator, can be used.

The CRD approach is based on the assumption that asset values decline (in real terms) at a constant percentage rate over time. This is consistent with the view that an asset's real value declines most when it is new and declines more slowly as it gets older. For example, an asset that cost $1,000 and is depreciated at 20 percent per year would be allowed a $200 deduction in the first year, a $160 deduction in the second year, and so on.[1] Recent empirical evidence indicates that the constant-rate approach approximates the actual pattern of economic decline of assets.[2]

The CRD system is much simpler than the pre-1981 Asset Depreciation Range (ADR) system because records do not have to be kept for each asset vintage and the number of classes can be drastically reduced. The CRD system can be as simple as the present ACRS system, and yet be more neutral among different types of corporate capital. The asset classes and depreciation rates under two versions of CRD are shown in Table 14. All assets, regardless of the year acquired, are aggregated into one of the six accounts; separate depreciation accounts for each vintage of asset are not

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1 $160 equals 20 percent of the tax basis of $800 ($1,000 cost less $200 in accumulated depreciation) at the end of the first year.

2 Charles R. Hulten and Frank C. Wykoff, "The Measurement of Economic Depreciation," in Charles R. Hulten, ed., *Depreciation, Inflation, and the Taxation of Income From Capital* (Washington, D.C.: Urban Institute Press, 1981), pp. 81-147.

TABLE 14. ASSET CLASSIFICATIONS AND DEPRECIATION RATES UNDER A CRD SYSTEM

| CRD Asset Class | ADR Midpoint Class | Constant Rate[a] | Bradley-Gephardt Constant Rate[b] | Examples of Asset Types |
|---|---|---|---|---|
| 4-year | Under 5.0 | .313 | .625 | Automobiles, light trucks, special tools |
| 6-year | 5.0 to 8.5 | .208 | .417 | Heavy trucks, computers, construction equipment, logging machinery |
| 10-year | 9.0 to 14.5 | .125 | .250 | Furniture, buses, mining machinery, general industrial equipment, locomotives and train cars |
| 18-year | 15.0 to 24.0 | .069 | .139 | Ships, aircraft, land improvements, refineries, blast furnaces, engines and turbines |
| 28-year | 25.0 to 35.0 | .045 | .089 | Telephone, electric, and gas distribution plant, railroad structures, steam production plant |
| 40-year | Over 35.0 | .031 | .063 | Office buildings, manufacturing structures, water utility plant, hydroelectric plant, rental housing |

SOURCE: Congressional Budget Office.

a. Accounts indexed for inflation.

b. Rounded.

required as they are under ACRS.[3] The table presents two sets of depreciation rates: the first set are those that might be used if the depreciation accounts were indexed for inflation; the second set are higher (that is, accelerated), but the depreciation accounts are not indexed for inflation. This latter set is that proposed in the Bradley-Gephardt bill. In either case, the annual depreciation expense is calculated by multiplying the depreciation rate by the account's net balance.

Because new assets are usually purchased throughout the tax year, they are all allowed 50 percent of the annual depreciation as a first-year deduction.[4] This is done by including half an asset's cost in the depreciation account in the year of acquisition and the other half in the second year. Newly acquired used assets are accorded the same tax treatment.

Sales of assets are handled by deducting the gross proceeds of sales from the net balance of the depreciation account.[5] In this way, the future real gain or loss on the sale of an asset is recognized. If assets are sold for a gain, the net balance of a depreciation account can fall below zero; these negative balances are "depreciated" over time (that is, the amount is included in income over a period of years). In this way, the gain on a sale of an asset is essentially taxed as ordinary income, but over future years. This method of handling gain or loss from the sale of an asset is designed to ensure that net depreciation deductions related to any asset remain the same, regardless of how often it is resold.

In the Bradley-Gephardt bill, depreciation rates are accelerated to compensate for the fact that the depreciation accounts are not indexed for inflation. This means that total deductions are less than under indexed CRD, but occur sooner in an asset's life. The rates are intended to result in deductions equal to economic depreciation (in present-value terms) at a dis-

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3 Pooled accounts might create problems if the Congress decided to change depreciation rates (for new assets) sometime in the future. For flexibility, vintage accounts could be retained.

4 For administrative ease, this rule assumes that, on average, firms purchase assets evenly over the tax year.

5 Note that this allows for symmetric treatment of asset sales and purchases. As the net account balance is decreased by the sale price of an asset for a seller, the net balance is increased by the purchase price (equal to the sale price) for the purchaser. Thus, the transfer of assets does not cause any net change in depreciation allowances in the corporate sector.

count rate of 10 percent. At discount rates other than 10 percent, however, the system produces depreciation deductions having a present value different from economic depreciation and from the indexed CRD system.

The Bradley-Gephardt system may under- or overcompensate for actual inflation. Suppose, for example, that the depreciation rates under an indexed CRD system and those under an unindexed system yield the same present value of deductions (equal to economic depreciation) at an inflation rate of 6 percent. If the inflation rate is greater than 6 percent, it will erode the real value of depreciation allowances; at inflation rates less than 6 percent, depreciation allowances will be greater than real economic depreciation. Depending on how much the actual inflation rate varies from 6 percent, unindexed depreciation allowances can vary significantly (in present-value terms) from economic depreciation. The indexed system is more complex, but protects against the vagaries of inflation; the unindexed system is simpler and is accurate at some average rate of inflation, but may be too generous (or not generous enough) in practice.

The tax reform plan proposed by the Treasury includes a depreciation system based on CRD with indexed depreciation accounts; the Treasury refers to it as the Real Cost Recovery System (RCRS).[6] It allocates assets to seven accounts based on their estimated economic depreciation rates. The tax depreciation rates are consistent with estimates of economic depreciation and therefore would substantially improve the neutrality of the tax system. RCRS would be more complex than the CRD system outlined above, however, because it would continue to require the use of vintage accounts, prorating deductions in the first year according to the month each asset was placed in service. These requirements result in more complicated accounting. In addition, RCRS requires computation of gain or loss upon disposition of each asset, instead of simply deducting disposition proceeds from the balance of an asset's account. Compared to the current system, RCRS would result in a large reduction in up-front deductions for depreciation, but would compensate for this by allowing much larger deductions in the future.

## Present-Value Depreciation

An alternative to the CRD system for tax depreciation would allow firms to deduct all depreciation in the year an asset was acquired instead of

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6 All references to the "Treasury plan" relate to the proposal outlined in Department of the Treasury, *Tax Reform for Fairness, Simplicity, and Economic Growth* (November 1984).

spreading it out over future years.[7] The amount deducted would equal the sum of all future depreciation allowances, discounted to reflect the fact that deductions are worth more now than in the future. Instead of taking deductions each year over the life of an asset, all deductions would be consolidated into a write-off in the first year.

A present-value depreciation system could be designed with the same asset classes as those in the CRD example. The first-year deduction would vary with the life of the assets; those with shorter lives would get higher percentage write-offs, and those with longer lives would get smaller write-offs. Table 15 shows the percentage write-offs that would be allowed assets under one version of a present-value depreciation system. The rates were chosen so that they equal the present value of the constant-rate depreciation deductions (under the indexed system) based on the depreciation rates shown in Table 14. For example, the present value of CRD deductions for an asset in the four-year class equals 91.0 percent; thus, the deduction under a present-value system would be 91.0 percent. This rate would be multiplied by the asset's cost to compute its first-year deduction; further deductions would be allowed. The first-year deduction would also reduce the basis of the asset to zero.

The present-value system is inflation-neutral. Because "depreciation" is taken in one up-front deduction, its value cannot be eroded by inflation. The present-value system, unlike CRD, requires an estimate of the real discount rate in order to calculate the appropriate first-year write-off. In table 15, the present value of deductions has been calculated based on a real discount rate on 4 percent. A higher discount rate would reduce the first-year write-off, and vice versa. The schedule of deductions would therefore ultimately depend on an estimate of this factor.

The first-year deduction has the administrative advantage that asset accounts need not be maintained, as would be required under CRD. In addition, firms concerned with current cash flow would prefer the up-front deduction to CRD even if they are economically equivalent over time. The system, however, has the disadvantage that if tax losses are not treated symmetrically with income (either through refundability or carryovers with interest), effective tax rates can vary depending on when the deduction is actually used. The problem of tax losses is a more severe problem under the

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7 This proposal was put forth by Alan J. Auerbach and Dale W. Jorgenson in "Inflation-Proof Depreciation of Assets," *Harvard Business Review* (September/October 1980), pp. 113-118.

TABLE 15. ASSET CLASSIFICATIONS AND DEPRECIATION RATES UNDER A PRESENT-VALUE DEPRECIATION SYSTEM

| CRD Asset Class | ADR Midpoint Class | First Year Write-Off (percentage of cost) | Types of Assets |
|---|---|---|---|
| 4-year | Under 5.0 | .910 | Automobiles, light trucks, special tools |
| 6-year | 5.0 to 8.5 | .864 | Heavy trucks, computers, construction equipment, logging machinery |
| 10-year | 9.0 to 14.5 | .784 | Furniture, buses, mining machinery, general industrial equipment, locomotives and train cars |
| 18-year | 15.0 to 24.0 | .660 | Ships, aircraft, land improvements, refineries, blast furnaces, engines and turbines |
| 28-year | 25.0 to 35.0 | .547 | Telephone, electric, and gas distribution plant, railroad structures, steam production plant |
| 40-year | Over 35.0 | .451 | Office buildings, manufacturing structures, water utility plant, hydroelectric plant, rental housing |

SOURCE: Congressional Budget Office.

present value system than under CRD, where deductions are spread out over time.

Effective Tax Rates Under Alternative Depreciation Options

The marginal effective tax rates on several assets under four depreciation policies are shown in Table 16. The table assumes that expected inflation is 6 percent, that investors require a real after-tax rate of return of 4 percent, that the assets are 100 percent equity-financed, and that no investment tax credit is provided. For reference, the first column of effective rates is based on the current system of ACRS and the investment tax credit. The second column shows the asset tax rates that would result if the investment tax credit was repealed (holding the marginal statutory tax rate constant at 46 percent). The rates are much less uneven when no investment credit is allowed, as was shown in Chapter V.

The third and fourth columns show the effective tax rates under CRD for the indexed and the unindexed systems, respectively. Since both systems are based on estimates of economic depreciation, the effective tax rates are fairly close to the statutory rate of 46 percent. The rates also show less variability across assets than under ACRS--with or without the investment tax credit.

The small differences in tax rates between the indexed and unindexed CRD systems indicate that at a 6 percent inflation rate, the present value of depreciation allowances is about the same under both policies. At other rates of inflation, however, the differences between the two systems would grow and become large. The rates under the indexed system would remain the same, but those under the unindexed system would be higher at higher inflation rates, and vice versa. This reflects the fact that effective tax rates under an unindexed system (either CRD or ACRS) would remain sensitive to the rate of inflation.

By design, the tax rates under present-value depreciation in this example are the same as under the indexed CRD system. They show less variation than rates under the current system and are also not affected by the expected rate of inflation.

The depreciation systems considered here improve the neutrality of the corporate tax system by equalizing all effective asset tax rates at about the statutory tax rate. If the Congress wanted to encourage investment in a neutral fashion, two options might be considered: a lower statutory tax rate, or expensing of some percentage of an asset's cost. Reducing the cor-

TABLE 16. ASSET TAX RATES UNDER ALTERNATIVE DEPRECIATION SYSTEMS

| Asset Class | Economic Depreciation Rate | ACRS Class | CRD Class | Effective Tax Rate Under | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Current ACRS | ACRS No ITC | Indexed CRD | Unindexed CRD | Present-Value Depreciation | Pure Expensing |
| Automobiles | 33.33 | 3-year | 4-year | -19.0 | 46.7 | 41.8 | 41.9 | 41.8 | 0.0 |
| Computers | 27.29 | 5-year | 6-year | -12.4 | 57.2 | 47.6 | 49.4 | 47.6 | 0.0 |
| Heavy Trucks | 25.37 | 5-year | 6-year | -11.6 | 55.7 | 46.0 | 47.9 | 46.0 | 0.0 |
| Aircraft | 18.33 | 5-year | 10-year | -8.5 | 48.9 | 50.7 | 53.4 | 50.7 | 0.0 |
| General Industrial Equipment | 12.25 | 5-year | 10-year | -6.1 | 41.0 | 42.8 | 45.4 | 42.8 | 0.0 |
| Electrical Machinery | 11.79 | 5-year | 10-year | -5.9 | 40.3 | 42.1 | 44.7 | 42.1 | 0.0 |
| Ships and Barges | 7.50 | 5-year | 18-year | -4.2 | 33.0 | 45.4 | 48.0 | 45.4 | 0.0 |
| Engines and Turbines | 7.86 | 10-year | 18-year | 22.3 | 45.6 | 46.2 | 48.8 | 46.2 | 0.0 |
| Electric Light and Power | 3.00 | 15-year[a] | 28-year | 18.1 | 35.3 | 40.3 | 42.3 | 40.3 | 0.0 |
| Telephone Plant | 3.33 | 15-year[a] | 28-year | 18.8 | 36.4 | 41.4 | 43.4 | 41.4 | 0.0 |
| Buildings | | | | | | | | | |
| Industrial | 3.61 | 18-year | 40-year | 41.6 | 41.6 | 47.1 | 48.6 | 47.1 | 0.0 |
| Commercial | 2.47 | 18-year | 40-year | 37.7 | 37.7 | 43.1 | 44.6 | 43.1 | 0.0 |

SOURCE: Congressional Budget Office.

NOTE: All calculations are based on a required after-tax rate of return of 4 percent, 100 percent equity financing, and 6 percent expected inflation.

a. 15-year public utility property.

porate statutory tax rate would be a straightforward way of lowering tax rates in equal proportion under the CRD and present-value depreciation systems. In the short run, reducing the corporate rate would involve a substantial revenue loss because taxes would be cut on income from already existing assets. Alternatively, the Congress might want to provide an effective rate reduction for new investment, but retain the old 46 percent statutory rate for existing assets. This could be done by allowing firms an immediate first-year write-off for some constant percentage of an asset's cost, and letting them depreciate the remaining amount through CRD or present-value expensing. Pure expensing (a 100 percent first-year write-off) results in an effective tax rate of zero for all assets (see the last column of Table 16). A mixture of pure expensing and economic depreciation (or a system close to it, such as CRD or present-value depreciation), could reduce the effective tax rate on new investment, remain neutral across assets, and retain the 46 percent statutory tax rate.[8]

The two approaches also differ in that the corporate rate cut would apply only to corporations, but the extra expensing deduction would apply to both corporate and noncorporate business as well. The corporate rate cut would have the advantage of reducing the distortion between corporate and noncorporate business, whereas the extra expensing provision would not. Moreover, the corporate rate cut would be neutral among all corporate investment--plant and equipment, inventories, mineral properties, and other assets--while the partial expensing provision would restore a tax preference only for the affected assets.

## MINERAL PROPERTIES

Mineral properties, such as oil and gas wells, coal mines, or gravel quarries, are similar to depreciable assets in that their value declines over time as

8 For example, if 50 percent of a new asset's cost was expensed, and the remaining 50 percent was subject to economic depreciation, the effective tax rate on the asset would be about 30 percent. (In order to preserve tax neutrality, the same percentage would be expensed for all classes of assets.) As the amount allowed under pure expensing is increased, the effective tax rate declines, approaching zero at the point when the asset is completely expensed. Thus, by using a combination of expensing and economic depreciation (or a close approximation), the Congress could set whatever effective corporate tax rate on new investment it wanted, without changing the statutory tax rate. See Arnold C. Harberger, "Tax Neutrality in Investment Incentives," in Henry J. Aaron and Michael J. Boskin, eds., *The Economics of Taxation* (Washington, D.C.: Brookings Institution, 1980), pp. 299-313.

production occurs. A mineral property usually entails three types of capital costs, each of which is treated separately under the tax code. First, there are costs associated with acquiring mineral rights and exploring for possible mineral deposits. These kinds of costs are referred to in the tax code as depletable costs. The second type of costs are development costs. These include costs such as those related to drilling oil wells or mine excavation. A third type of capital costs are those for capital equipment, such as pumps or construction machinery; these are referred to as depreciable costs.

Under current law, mineral acquisition costs are capitalized and recovered through cost or percentage depletion, unless the rights prove worthless, in which case they are deductible in full at that time.[9] Cost depletion allows firms to deduct costs according to the percentage of estimated reserves produced each year. For example, if 5 percent of a well's estimated reserves were produced in a given year, 5 percent of the well's original depletable costs would be written off in that year. As production enables more accurate estimates of remaining reserves, adjustments are made to the annual depletion rates.

In many cases, taxpayers are allowed to use percentage depletion instead of cost depletion to compute their annual depletion deduction. Percentage depletion allows firms to deduct a certain percentage of the gross income from the property as depletion, regardless of the firm's actual investment. For example, nonintegrated oil and gas companies are allowed to deduct 15 percent of gross revenue (from oil and gas extraction) each year, regardless of the cost of the mineral rights.[10] Percentage depletion also applies to other mineral properties, such as coal (10 percent), uranium (22 percent), oil shale (15 percent), gold (15 percent), and iron ore (15 percent).[11]

Exploration costs of oil and gas producers are handled the same way as mineral rights acquisition costs: they are capitalized and recovered through depletion for oil and gas producers. For other mineral industries, explora-

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9 Capitalized costs are those that are not immediately deductible (like operating expenses), but are deducted in future periods.

10 Integrated producers, under the Tax Reduction Act of 1975 (P.L. 94-12), are required to use cost depletion instead of percentage depletion. Also, properties that are transferred after they have been brought into production are not eligible for percentage depletion.

11 In the event that the deduction under percentage depletion is less than under cost depletion, the cost depletion amount is used.

tion costs may be deducted immediately, but are subject to recapture once a mine is brought into production.[12]

Mine development costs are generally deductible at the time of the expenditure. Oil and gas well drilling costs are also immediately deductible.[13] Capital machinery and equipment are generally subject to ACRS and the investment tax credit. (Other mineral capital expenditures are not eligible for the investment tax credit.)

## Defects in the Current Tax Treatment

The current tax treatment of mineral properties provides tax incentives for investment, but is inconsistent with the definition of real economic income. Many of the preproduction expenses of mineral properties can be deducted more quickly than the value of the assets they "produce" declines. For example, drilling expenditures by oil companies produce assets (that is, producing wells) that decline in value as oil reserves are depleted. The tax code, however, allows firms to deduct these costs much sooner than indicated by the decline in the value of the underlying asset. Similarly, percentage depletion may allow firms to deduct depletion in excess of their original investment. In fact, percentage depletion (in present-value terms) can be more generous than immediate expensing of all depletable costs. These provisions are analogous to, but potentially more generous than, accelerated depreciation in the case of capital equipment. The result is that income from mineral properties may be subject to very low effective tax rates.

## Alternatives

Two options might be considered in changing the taxation of mineral properties so as to make effective tax rates closer to the rates that would prevail on other assets under a broad-based income tax. The first option is

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12 Exploration costs are recaptured by reducing depletion deductions by the amount of the exploration costs.

13 The immediate full (100 percent) deduction for drilling costs for integrated (as opposed to independent) oil and/or gas producers was reduced to 85 percent in TEFRA, and further reduced to 80 percent by the Deficit Reduction Act of 1984. The remaining 20 percent is to be amortized on a straight-line basis over three years. This cutback only applies to producing wells; drilling costs associated with dry holes are still fully deductible.

to require mineral firms to use cost depletion instead of percentage depletion for all their properties. The cost basis for a property would be the total amount of preproduction costs, including all exploration and development costs and the cost of acquiring mineral rights. In addition, all expenditures that extended or enhanced the value of the property after it was under production would be capitalized. These expenditures would not be expensed, but would be deducted as the value of the property declined over time.

Since cost depletion approximates economic depletion (at a zero rate of inflation), the effective tax rate on all mineral properties would be about the same as the statutory tax rate.[14] At positive inflation rates, unindexed cost depletion deductions decline in real value, and cost depletion can be much less generous than economic depletion. In this case, cost depletion would cause effective tax rates higher than the statutory rate. It would be desirable to adjust depletion deductions so that they maintained their real value in the face of inflation. This could be done by annually adjusting the cost basis of the property for the rate of change in the general price level; for this purpose, an index like the GNP deflator could be used. This adjustment would be similar to that discussed for depreciable assets in the preceding section. The Treasury tax reform proposal would require the use of indexed cost depletion for mineral properties, in conjunction with repeal of percentage depletion and expensing of preproduction mining and drilling costs.

Another way of adjusting for inflation would be to accelerate the schedule of depletion deductions so that the present value of depletion deductions was approximately equal to the present value of economic depletion. For example, the Bradley-Gephardt proposal allows oil and gas properties to be depleted under a constant annual rate of 25 percent.[15] While this may be the appropriate rate for some properties and some inflation rates, for others it may be too generous or not generous enough.

## Successful and Unsuccessful Efforts

Under a truly comprehensive income tax, the cost basis for computing depletion would include the costs related to unsuccessful, as well as

14 Cost depletion (with no inflation) is somewhat more generous than economic depletion. For short-lived properties, the difference is large; for longer-lived properties (over 20 years), the difference is fairly small.

15 This allows a firm to write off 25 percent of the remaining cost basis of the property each year.

successful, efforts. Although current tax laws allow firms to expense all exploration and development costs for unsuccessful wells or mines, a pure income tax might require them to be deducted over the life of successful wells and mines.

An example will illustrate the reason for such an approach. Suppose an oil company spends $50,000 each to drill two exploratory wells; the first of them is dry, but the second is productive. Under current law, the firm would be allowed to deduct the $50,000 for the unsuccessful well immediately, even though those expenditures were necessary to produce the discovery of the productive well. Under the economic definition of income, the full $100,000 in costs would be matched against the market value of the successful well to determine the change in real net worth. If the productive well was valued at $50,000, the net effect would be a net deduction of $50,000, as would be the case under current law. On the other hand, if the new well was worth $100,000, there would be no first-year deduction and the $100,000 would form the basis for future deductions for depletion. This is the result that would occur if all drilling expenditures (both for productive and for unproductive wells) were capitalized. The treatment of these expenditures therefore depends on the market value of the newly discovered well.

In the long run, the oil company must be able to find oil reserves that are worth at least as much as the total of all exploration and development costs for all wells, or else it will go bankrupt. It is reasonable to assume that the value of the reserves a firm discovers in an overall exploratory program must equal or exceed the program's cost, even though for individual wells the value of reserves may vary greatly with respect to costs. The capitalization of dry-hole expenditures is consistent with the basic principle that all costs of acquiring an asset--and costs of dry wells are certainly part of the cost of finding successful ones--should be included in the depreciable (or depletable) basis for that asset.[16] In effect, this requirement is in lieu of accrual taxation on the gains associated with the discovery of new wells. Under this approach the costs of unsuccessful efforts could be deducted at the average depletion rate of a firm's total reserves, or individual efforts could be assigned to specific leases or fields. This treatment, however, would not be consistent with the current tax law that only taxes gains and losses as they are realized, and not as they accrue.

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16 Gerard M. Brannon, "Existing Tax Differentials and Subsidies Relating to Energy Industries," in Gerard M. Brannon, ed., *Studies In Energy Tax Policy* (Cambridge, Massachusetts: Ballinger Publishing Company, 1975), pp. 3-40.

Assigning specific unsuccessful efforts to other producing properties might prove difficult in some cases. For example, if a lease proved totally unproductive, some would argue that the firm should be allowed an immediate write off as the asset was worthless. (Other depreciable assets that become worthless for whatever reason may now be written off.) Both the Bradley-Gephardt and Treasury plans require that dry hole expenditures be capitalized and included in the depletable basis of producing wells. If a property proves totally worthless, a company may write off its full investment (including any dry holes) at the time the property is abandoned.

The revenue estimates from switching to indexed cost depletion are shown in Table 20 at the end of the chapter. They are based on full capitalization of drilling expenditures for successful wells and unsuccessful wells on producing properties. All drilling costs may be written off completely, however, at the time an entire property is abandoned.

## RESEARCH AND EXPERIMENTATION

The current tax law allows expenditures on wages, supplies, and other costs associated with research and experimentation (R&E), to be expensed. It also provides a tax credit for R&E expenditures that exceed the average of the three previous years. This credit is currently scheduled to expire at the end of 1985.

Research and experimentation expenditures resemble other capital expenditures in that they produce assets, such as new products or production technologies, that earn income over time. Under the economic definition of income, the proper tax treatment of R&E expenditures would be to match them against the market value of the assets they produce and include the difference (either a gain or a loss) in income. The assets would then be amortized over time as their value declined.

In practice, the market value of the assets resulting from R&E expenditures can only be approximated. One possible rule would require firms to capitalize all R&E expenditures, regardless of the true market value of the assets they produce, on the theory that in the long run these expenditures must produce assets worth at least as much as their cost or else they would not be undertaken.[17] Under this rationale, no income or loss deduction would be allowed in the year of expenditure, whatever the outcome, and the capitalized expenditures would be amortized over time.

17 This is the same rationale as applied to including the cost of dry holes in the depletable basis for depletion under a comprehensive income tax.

This would have to be done according to some arbitrary rule of thumb, such as five years, because there is no way of measuring actual depreciation.

The current tax rule--expensing of R&E expenditures with an incremental tax credit--has been defended as a subsidy to promote R&E activities. The subsidy is viewed as a way of overcoming the disincentive of a firm's developing a valuable product or new technology, then losing part of the resulting benefits to imitators, who can utilize the first firm's innovation without having to pay for the cost of producing it. Since many technological advances provide significant societal benefits, the pure private profit motive may not be sufficient to generate "enough" economy-wide investment in R&E. There is wide agreement among economists that some subsidy for R&E is justified; the more difficult problem is determining the appropriate level.

Capitalizing R&E expenditures in a broad-based income tax, in accordance with the economic definition of income, would eliminate the present subsidy for R&E. If the Congress wanted to preserve an R&E incentive, it could do so by maintaining the current tax treatment or by retaining only the expensing provision without the incremental credit. (If tax rates on other investments were raised in moving toward a broader-based tax, the expensing provision alone might prove to be a sufficiently powerful incentive for R&E.) The Treasury tax plan would continue the expensing of R&E expenditures indefinitely and extend the incremental tax credit for three years. An alternative would be to subsidize R&E through the outlay side of the budget instead of through the tax system. In this way, the Congress could better target funds to R&E projects that offered particular social value, although such a program might tend to reward grantsmanship rather than scientific originality or skill.

## INVENTORY ACCOUNTING

The methods used to account for inventories determine the taxable profit earned on a firm's sales. Expenditures to acquire (or produce) goods in inventory are not deductible until those goods are sold. This is consistent with the economic definition of income: expenditures to acquire assets are not costs and are therefore not deductible. When inventoried goods are sold, this clearly results in a reduction in the firm's assets, and a deduction is taken at that time. This deduction is matched against the revenue received from the sale to arrive at the net income on the transaction.

Under a pure definition of economic income, the "specific invoice method" of inventory accounting would be used. The profit on each trans-

action would be determined by the difference between a specific item's sale price and its cost. The cost of each item would be indexed for inflation, so that only the real gain on each transaction would be counted as income.[18]

The difficulties of this approach are formidable, and the accounting profession, as well as the IRS, have authorized alternative methods of inventory accounting. Generally speaking, firms are presently allowed to determine their inventories according to either (1) cost or (2) the lower of cost or market. The cost basis for inventory is generally calculated according to methods that break the nexus between each specific item and its acquisition cost. Two commonly used methods--first in, first out (FIFO) and last in, first out (LIFO)--have very different effects on corporate taxable income.[19]

Under FIFO, the cost of goods sold is computed on the assumption that the oldest goods in inventory are sold first and the newest are sold last, regardless of the actual flow of goods. This means that both real and inflation gains are counted as income when goods are sold. Consequently, in times of rising prices taxable income is significantly higher under FIFO than under other methods.

LIFO allows firms to use the cost of the most recent purchases to establish the cost of goods sold. Whether they actually sell their newest goods first is basically irrelevant. Under LIFO, firms can avoid realizing both inflationary and real gains (and losses) on inventories, since the most recent costs already reflect these changes. For example, if the cost of an item rises from $10 to $15, the firm is allowed to deduct $15 as the cost of that item even if it really cost only $10--the firm is thereby allowed to avoid recognition of a $5 gain. To the extent that the cost of inventoried goods rises at a faster rate than general inflation, costs are overstated and income is understated. Conversely, if prices rise less than the rate of inflation, costs are understated.

The importance of inventory accounting in determining taxable income can be illustrated with an example. Suppose a firm builds five tractors at a

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18 Moreover, a truly comprehensive income tax would count as income all accrued real gains on inventory, even if that inventory had not yet been sold.

19 Other methods commonly used are the average-cost method and the retail-cost method. FIFO and LIFO represent the widest range of choice available to firms.

cost of $10,000 per unit, but does not sell any until the second year. The value of the inventory at the end of the first year (also the beginning inventory for the next year) is $50,000 under either FIFO or LIFO. In the second year, the firm builds ten tractors at a cost of $11,000 per unit and sells five tractors for $11,500 per unit. Assume that the general rate of inflation is equal to 5 percent and that the firm has a 46 percent tax rate.

The critical difference between FIFO and LIFO is the difference in the valuation of the cost of sales. Under FIFO, the tractors are assumed to cost $10,000 apiece, yielding a total deduction of $50,000; under LIFO the cost is calculated at $11,000 per tractor, or $55,000 in total. The tax implications of this difference are quite significant: the firm would pay $3,450 in tax on taxable income of $7,500 under FIFO, and only $1,150 under LIFO on income of $2,500. In fact, the actual economic income realized by the firm is $5,000.[20]

This example illustrates how LIFO can allow companies to avoid the recognition of real and inflationary holding gains, thereby understating income when the cost of inventories rises more than the general inflation rate. Conversely, FIFO results in the recognition of all holding gains, real and inflationary, thereby overstating economic income whenever inflation is positive. In general, when prices (and costs) are rising, firms will have an incentive to switch to LIFO accounting because of the potentially large tax advantage.

Despite the tax advantage of using LIFO during periods of high inflation, most firms use inventory methods other than LIFO. One possible explanation for this is that FIFO allows them to report higher earnings to their shareholders. (Taxpayers are required to use the same accounting method for tax purposes as for financial reporting.) During the 1970s, the tax consequences for corporations of eschewing LIFO were very important. The difference between the cost of goods reported by all firms and their replacement cost is indicated by the "inventory valuation adjustment" (IVA) computed by the Bureau of Economic Analysis (BEA). The IVA shows how profits would be affected if all firms were on a LIFO basis, except in times of serious inventory liquidation. It thus reflects the extent to which reported profits are increased by use of methods other than LIFO. In both 1979 and 1980, the corporate IVA was over $40 billion and was much larger

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20 $5,000 equals the $2,500 real holding gain on the first year's tractor production (a 10 percent nominal gain less 5 percent inflation on a base of $50,000), plus $2,500 in profits (from sales of $57,500 less current costs of $55,000 or $11,000 times 5 tractors).

than the BEA's "capital consumption adjustment" which is the difference between estimated replacement cost depreciation and actual tax depreciation. This indicates that inflation potentially had a larger distortionary effect on corporate profits and taxes because of the way firms accounted for inventories than because of the inadequacy of tax depreciation allowances in those years.

One inventory method that could replace FIFO and LIFO is called "constant-dollar FIFO" because the beginning inventory of a period is adjusted by the change in the domestic spending deflator.[21] This system is included in the Treasury's tax reform proposal. As long as goods are not liquidated, constant-dollar FIFO (CD-FIFO) allows inventories to be carried at cost adjusted for general price-level changes on corporate balance sheets. The primary advantages of this system would be that nominal inventory gains would not be taxed (as they now are under FIFO), and that real gains would be recognized as ordinary income (as they are not under LIFO) and taxed as such.

The mechanics of CD-FIFO are as follows. The initial inventory of the period is adjusted by the change in the general price level over the accounting period. New purchases are valued at cost, and the ending inventory is measured the same way as under regular FIFO.[22] The additional deduction (in excess of the regular FIFO deduction) to which firms would be entitled equals the product of the general rate of inflation and the value of the beginning inventory. (For example, if the inflation rate is 5 percent, and the beginning inventory is $50,000, the extra deduction is $2,500.)

Constant-dollar FIFO differs from LIFO to the extent that the specific costs of goods in inventory change relative to the general price level; this allows real gains (and losses) to be recognized. If specific inventory costs and general prices change at the same rate, CD-FIFO will approximate LIFO for income measurement purposes.

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21 This method has been advocated by John B. Shoven and Jeremy I. Bulow, in "Inflation Accounting and Nonfinancial Corporate Profits: Physical Assets," *Brookings Papers on Economic Activity, 3:1975* (Washington, D.C.: Brookings Institution, 1975), pp. 583-597.

22 To the extent that the inventory (as calculated under regular FIFO) includes goods acquired in any prior period, their cost would be adjusted by the general price index so that they would be valued at approximately their current dollar cost.

## CAPITAL GAINS ON FINANCIAL ASSETS AND LIABILITIES

Companies, like other investors, often hold portfolios of marketable stocks and bonds in order to maintain a certain degree of liquidity or for diversification purposes. While their market value may rise or fall, such gains (or losses) are not now recognized as part of taxable income until the securities are sold.[23] This permits corporations, as well as other investors, to shelter capital gains on financial securities.

Such unrealized gains or losses could be taxed as they accrue.[24] On publicly traded securities, financial assets are easy to evaluate on an accrual basis. In fact, some securities, such as commodity straddles and stock options, are already effectively taxed annually on an accrual basis. Also, corporate or government bonds issued at a discount are taxed on their imputed annual interest income, even if the bonds are never traded. It might be reasonable to extend accrual taxation to securities where market prices are easily determined, although for securities that are not publicly traded severe practical measurement problems would exist.

In a broad-based corporate income tax, all accrued gains and losses could be included as ordinary income and subject to full taxation. (Current law basically allows corporations a top 28 percent tax rate on all long-term net capital gains.) No distinction would be made between long- or short-term gains or losses. The calculation of a capital gain (both realized and unrealized) would be based on the difference between the market value and the original cost of the stock or bond, adjusted by an inflation index.

An indexed basis for capital gains was proposed by the Senate in its version of TEFRA but was dropped by the House-Senate conference. One of the major arguments against such an adjustment was that long-term capital gains are already accorded preferential tax treatment. If the Congress required capital gains to be taxed as ordinary income, however, the appropriate income tax treatment is to include only that part of the gain that represents a real increase in the corporation's net worth. One signifi-

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23 Unrealized losses on a portfolio of stocks and/or bonds may be recognized for financial reporting, although unrealized gains are not.

24 In the current tax system, income is not counted for taxation unless it is realized. The reasons for the realization principle are that (1) income is easier to measure upon a realization than upon an accrual basis, and (2) in order to pay the taxes on an accrued gain, some taxpayers might be forced to sell an asset, such as a home.

cant benefit from taxing accrued gains, instead of realizations, is that investors would no longer be able to defer taxes by putting off realizations.

Gains or losses on debt instruments, like those on assets, are not brought into the tax base until realized (redeemed). In the case of corporate bonds, this treatment can result in a gross misstatement of real debt obligations when interest rates change. For example, the current market price of a 7 percent bond maturing in 2001 is about $66 per $100 par value.[25] This indicates that the issuing firm has an unrealized capital gain of $34 per $100 of par value debt. That is, it could buy back its own debt at $66, even though it received $100 at original issue (assuming the bond was issued at par value). Generally, bonds that were issued at interest rates below those currently prevailing imply unrecognized gains for the issuers; similarly, bonds issued at rates higher than the current market rates imply accrued losses. Because bonds are carried by the debtor corporation at par value (or par value less discount at time of issuance), gains or losses are only taxable when they are realized.

Under a comprehensive income tax, corporate debt could be valued at market prices rather than at par values. Unrealized real gains and losses on debt instruments would be recognized annually. The treatment of corporate debt would also be consistent between corporate issuers and corporate holders. To the extent that corporations held bonds issued by other firms, increases in the market price of these bonds would be recorded as a gain to the holder and a loss to the original issuer; a decline in price would result in a loss to the holder and a gain for the issuer. Both gains and losses would be indexed for inflation so that only real amounts were recognized as income.

Taxation of capital gains and losses on an accrual basis would pose prohibitive administrative difficulties for assets that were not publicly traded, and would require a significant amount of additional recordkeeping in order to keep track of the annual inflation adjustments. In addition, some small investors might have liquidity problems if the capital gains tax was due before a gain was, in fact, realized. These problems might be solved by taxing gains upon realization, indexing the cost basis for inflation, and including an interest penalty for deferral of the tax over the holding period.[26] The IRS could publish inflation and interest adjustment schedules

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25 This is for an AT&T bond on April 11, 1985.

26 See Roger Brinner, "Inflation, Deferral, and the Neutral Taxation of Capital Gains," *National Tax Journal*, vol. 26 (December 1973), pp. 565-573; and James W. Wetzler, "Capital Gains and Losses," in Joseph A. Pechman, ed.,

so that taxpayers could translate their nominal capital gains into the amount properly includable in taxable income. Table 17 shows the current and revised capital gains schedule under this approach; Table 18 shows the adjustment factors used to calculate the adjusted gain. At the time of realization of a capital gain, taxpayers would adjust the gain to reflect changes in the overall price level, and apply an interest rate factor (based on the length of time the asset had been held) to determine the associated net tax liability. This calculation would make the simplifying assumption that gains were earned at some constant annual rate over the holding period--clearly a tenuous assumption.[27] Thus, gains could only be approximately taxed as if they were accrued. The system would be administratively much easier than annual taxation of accrued gains, however, because values would not have to be estimated for assets whose prices were not readily observable, such as stock shares in privately held companies.

The assessment of interest on the tax liability related to a capital gain would drastically reduce the current incentive to "lock in" one's investment. The tax payable on a capital gain would not decline (in present-value terms) if the asset was held longer, as it does under the current system. Stocks would probably be traded more frequently under such a system, with the result that financial markets might allocate capital more efficiently.

In order to be consistent, as well as neutral, among assets, full taxation (both corporate and individual) of gains earned from the ownership of corporate stock would also involve the full taxation of gains earned on other assets, such as homes, gold, or land. In addition, capital losses would have to be fully deductible since they would no longer provide an opportunity for sheltering ordinary income.[28] In order to prevent large tax bracket jumps when large gains were realized, such a system could include expanded provisions for income-averaging so that gains would be spread out over several years.

The Treasury tax reform proposals include indexation of the basis for long-term capital gains and repeal of the lower corporate tax rate and of the 60 percent individual exclusion. The plan does not include assessment of an interest charge on the deferral of tax liability over the holding period.

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*Comprehensive Income Taxation* (Washington, D.C.: Brookings Institution, 1977), pp. 115-162.

27 The real interest rate used to calculate the interest adjustment factors in Table 18 is 3 percent.

28 In order to prevent deferring tax on gains at death, the original basis of an asset would have to be carried over at death.

TABLE 17. POSSIBLE REVISION OF SCHEDULE D FOR LONG-TERM CAPITAL GAIN TAXATION (In dollars)

CURRENT FORM

PART II. Long-Term Capital Gains and Losses--Assets held More than Six Months

| a. Kind of Property and Description (Example, 100 shares of "Z" Corp.) | b. Date Acquired (Mo., Day, Year) | c. Date Sold (Mo., Day, Year) | d. Gross Sales Price Less Expense of Sale | e. Cost or other Basis, as Adjusted | f. Gain (or Loss) |
|---|---|---|---|---|---|
| 100 shares, "Z" Corp. | Mar. 4, 1973 | Nov. 22, 1981 | 280 | 100 | 180 |

REVISED FORM

PART II. Long-Term Capital Gains and Losses--Assets Held More than Six Months

| a. Kind of Property and Description (Example, 100 shares of "Z" Corp.) | b. Date Acquired (Mo., Day, Year) | c. Date Sold (Mo., Day, Year) | d. Gross Sales Price Less Expense of Sale | e. Cost or other Basis, as Adjusted | f. Cost Multiplied by Inflation Adjustment | g. Inflation-Adjusted Gain (d minus f) | h. Gain Multiplied by Interest Adjustment[a] |
|---|---|---|---|---|---|---|---|
| 100 shares, "Z" Corp. | Mar. 4, 1973 | Nov. 22, 1984 | 280 | 100 | 214 | 66 | 73 |

SOURCE: Congressional Budget Office update of Roger Brinner and Alicia Munnell, "Taxation of Capital Gains: Inflation and Other Problems," *New England Economic Review* (September/October 1974), Figure 1, pp. 18-19.

a. Indexed taxable gain including the appropriate interest charge for deferral.

TABLE 18. TABLE TO ACCOMPANY REVISED SCHEDULE D

| Date of Purchase | Inflation Adjustment | Interest Adjustment | Date of Purchase | Inflation Adjustment | Interest Adjustment |
|---|---|---|---|---|---|
| 1939 | 7.974 | 1.452 | Jan. 1982 | 1.111 | 1.029 |
| 1940 | 7.801 | 1.442 | Feb. 1982 | 1.111 | 1.028 |
| 1941 | 7.259 | 1.432 | Mar. 1982 | 1.111 | 1.027 |
| 1942 | 6.605 | 1.422 | Apr. 1982 | 1.096 | 1.026 |
| 1943 | 6.273 | 1.412 | May 1982 | 1.096 | 1.025 |
| 1944 | 6.125 | 1.402 | June 1982 | 1.096 | 1.024 |
| 1945 | 5.980 | 1.392 | July 1982 | 1.087 | 1.024 |
| 1946 | 5.166 | 1.382 | Aug. 1982 | 1.087 | 1.023 |
| 1947 | 4.575 | 1.372 | Sept. 1982 | 1.087 | 1.022 |
| 1948 | 4.279 | 1.362 | Oct. 1982 | 1.078 | 1.021 |
| 1949 | 4.319 | 1.352 | Nov. 1982 | 1.078 | 1.020 |
| 1950 | 4.233 | 1.342 | Dec. 1982 | 1.078 | 1.020 |
| 1951 | 3.971 | 1.331 | | | |
| 1952 | 3.914 | 1.321 | Jan. 1983 | 1.065 | 1.019 |
| 1953 | 3.854 | 1.311 | Feb. 1983 | 1.065 | 1.018 |
| 1954 | 3.807 | 1.301 | Mar. 1983 | 1.065 | 1.017 |
| 1955 | 3.726 | 1.291 | Apr. 1983 | 1.058 | 1.016 |
| 1956 | 3.610 | 1.281 | May 1983 | 1.058 | 1.015 |
| 1957 | 3.491 | 1.270 | June 1983 | 1.058 | 1.015 |
| 1958 | 3.433 | 1.260 | July 1983 | 1.050 | 1.014 |
| 1959 | 3.354 | 1.250 | Aug. 1983 | 1.050 | 1.013 |
| 1960 | 3.300 | 1.240 | Sept. 1983 | 1.050 | 1.012 |
| 1961 | 3.270 | 1.230 | Oct. 1983 | 1.039 | 1.011 |
| 1962 | 3.211 | 1.220 | Nov. 1983 | 1.039 | 1.011 |
| 1963 | 3.163 | 1.210 | Dec. 1983 | 1.039 | 1.010 |
| 1964 | 3.115 | 1.199 | | | |
| 1965 | 3.049 | 1.189 | Jan. 1984 | 1.0 | 1.0 |
| 1966 | 2.953 | 1.179 | Feb. 1984 | 1.0 | 1.0 |
| 1967 | 2.867 | 1.169 | Mar. 1984 | 1.0 | 1.0 |
| 1968 | 2.747 | 1.159 | Apr. 1984 | 1.0 | 1.0 |
| 1969 | 2.612 | 1.149 | May 1984 | 1.0 | 1.0 |
| 1970 | 2.479 | 1.139 | June 1984 | 1.0 | 1.0 |
| 1971 | 2.361 | 1.129 | July 1984 | 1.0 | 1.0 |
| 1972 | 2.267 | 1.119 | Aug. 1984 | 1.0 | 1.0 |
| 1973 | 2.144 | 1.109 | Sept. 1984 | 1.0 | 1.0 |
| 1974 | 1.970 | 1.099 | Oct. 1984 | 1.0 | 1.0 |
| 1975 | 1.802 | 1.089 | Nov. 1984 | 1.0 | 1.0 |
| 1976 | 1.713 | 1.079 | Dec. 1984 | 1.0 | 1.0 |
| 1977 | 1.619 | 1.069 | | | |
| 1978 | 1.507 | 1.059 | | | |
| 1979 | 1.387 | 1.049 | | | |
| 1980 | 1.271 | 1.039 | | | |
| 1981 | 1.159 | 1.029 | | | |

## BROAD-BASED INCOME TAX PROPOSALS

Three comprehensive income tax proposals are compared in Table 19: the Treasury reform package, the Bradley-Gephardt bill, and the Kemp-Kasten bill. The table includes only corporate income tax provisions and several personal income tax provisions that bear directly on the taxation of income in the corporate sector, such as those for capital gains or interest and dividend income.

The Treasury plan is the most detailed of the proposals, and adheres most consistently to the concept of economic income. It includes provisions for economic depreciation of assets, cost depletion of mineral properties, full taxation of capital gains, and constant-dollar FIFO for inventories. It would index asset accounts so that the value of depreciation and depletion do not decline in real terms because of inflation. The cost basis of capital gains would also be indexed for inflation.

The Treasury plan, Bradley-Gephardt, and Kemp-Kasten would repeal many of the tax incentives and credits now in the tax code. These include the investment tax credit, energy credits, percentage depletion, and the capital gains treatment of timber income. The Treasury plan keeps the incremental credit for R&E, while the Bradley-Gephardt and Kemp-Kasten proposals eliminate this subsidy. All three, however, continue the expensing of research and experimentation expenditures. One unique feature of the Treasury proposal is the allowance of a 50 percent deduction for dividends paid; this would effectively cut the tax rate on income used to pay dividends and reduce the present differential between corporate and noncorporate tax rates. (A more detailed discussion of tax integration is in Chapter VIII.)

The Treasury tax reform plan proposes to revise the taxation of interest so that the inflation component of the interest rate would not be a deductible expense to the borrower, nor would it count as income to the lender. The plan does this through a partial deduction (or inclusion) of a taxpayer's interest expense (or income). The amount of the fractional exclusion rises with the inflation rate. For example, at 3 percent inflation, the exclusion is 33 percent; at 6 percent inflation, the exclusion is 50 percent. In this way, the system would prevent borrowers from deducting interest that might be more appropriately classified as principal, and would require lenders to report only real interest income.

The Bradley-Gephardt bill also proposes to tax comprehensive corporate income. The most significant difference between it and the Treasury plan is that it does not include any provisions for indexing. Nominal capital

TABLE 19. COMPARISON OF BROAD-BASED CORPORATE INCOME TAX PROPOSALS

| Provision | Current Law | Treasury [a] | Bradley-Gephardt [b] | Kemp-Kasten [c] |
|---|---|---|---|---|
| **Tax Rates** | | | | |
| Regular | 15%-40% on first $100,000, 46% thereafter | 33% | 30% | 15% on first $50,000<br>25% on next $50,000<br>35% thereafter |
| Capital Gains (Corporate) | 28% maximum on nominal gains | 33% on real gains | 30% on nominal gains | Option of 21% on nominal gains or 35% on real gains [d] |
| Capital gains (Individual) | 20% maximum on nominal gains | 35% maximum on real gains | 30% maximum on nominal gains | Option of 17% (maximum) on nominal gains or 28.8% on real gains |
| Add-on Minimum Tax | 15% | Repealed | Repealed | Current law |
| **Tax Deductions and Credits** | | | | |
| Investment Tax Credit | 6%-10% | Repealed | Repealed | Repealed |
| R&E Credit [e] | Yes | Extended | Repealed | Repealed |
| Rehabilitation Credit | Yes | Repealed | Repealed | Repealed |
| Energy Credits [e] | Yes | Repealed | Repealed | Repealed |
| ESOP Tax Credit | Yes | Repealed | Repealed | Repealed |
| Expensing of R&E Costs | Yes | Current law | Current law | Expensing [f] |
| Depreciation of Plant and Equipment | ACRS | Indexed CRD depreciation | Unindexed, accelerated CRD | Expensing [f] |
| Intangible Drilling Costs | Expensing [g] | Indexed cost depletion | Unindexed, accelerated depletion | Expensing [f] |

(Continued)

TABLE 19. (Continued)

| Provision | Current Law | Treasury [a] | Bradley-Gephardt [b] | Kemp-Kasten [c] |
|---|---|---|---|---|
| Depletable Costs | Percentage depletion or cost depletion | Indexed cost depletion | Unindexed accelerated depletion | Expensing [f] |
| Preproduction Expenses for Mines | Expensing | Indexed cost depletion | Unindexed accelerated depletion | Expensing [f] |
| Inventories | LIFO, FIFO, and other methods | LIFO or FIFO, and others | Current law | Current law |
| Loss Carryovers, Carrybacks | 15-year carryover 3-year carrybacks | Current law | Current law | Current law |
| **Indexation for Inflation** | None | Indexed cost basis for assets; indexation of debt through limited deduction of interest expense (and partial exclusion of income) | None | Indexed cost basis for assets |
| **Integration** | $100 dividend exclusion for individuals | 50% dividend deduction for corporations | None | None |

SOURCE: Congressional Budget Office.

a. Reform proposal outlined in Department of the Treasury, *Tax Reform for Fairness, Simplicity, and Economic Growth* (November 1984).
b. H.R. 800, S. 409 (99th Congress).
c. H.R. 777, S. 325 (99th Congress).
d. Assumes taxpayer is in top corporate tax bracket of 35 percent. For firms in lower brackets, rates would be reduced proportionately.
e. The R&E credit and most energy credits are scheduled to expire at the end of 1985.
f Kemp-Kasten allows depreciation that is equivalent to expensing in present-value terms at a 3.5 percent real discount rate.
g. Under current law, intangible drilling costs are expensed for nonintegrated oil and gas companies; for integrated companies, 80 percent of such costs are expensed and the remainder are amortized over 36 months.

gains are taxed in full. Although both depreciation and depletion are accelerated to provide an adjustment for inflation, the allowances may over- or understate economic depreciation or depletion depending on the rate of inflation that actually prevails. The Bradley-Gephardt bill does not include any provision for integrating the corporate and personal tax systems.

The Kemp-Kasten proposal eliminates many of the subsidies in the current tax system, including the investment tax credit and ACRS, but it replaces them with a depreciation system that is intended to provide the equivalent of expensing in present-value terms. Thus, it provides a consumption-tax type of rule for depreciable assets, thereby maintaining an investment incentive in the context of an income tax. Since the expensing provision applies to all depreciable and depletable assets, it is basically neutral in its effects among different types of depreciable assets--in effect, imposing a zero tax rate on all of them. Assets to which expensing does not apply, such as land or inventories, are subject to much higher rates of taxation so some distortion would remain in the taxation of corporate investment.

The Kemp-Kasten rules regarding capital gains are more liberal than either the Treasury's or Bradley-Gephardt's. Investors have the option of indexing their cost basis for inflation or excluding 40 percent of their gain (unindexed) from taxation. The latter option could allow investors to avoid a substantial portion of the taxes on real capital gains if those were large compared to inflationary gains.

## REVENUE ESTIMATES

The effects that the options discussed in this chapter would be likely to have on corporate tax revenues are shown in Table 20. The aggregate effect of one possible broad-based corporate tax is also presented. These estimates are primarily those in the original Treasury tax reform plan. It should be noted that most of the provisions shown here would have large revenue effects for the individual income tax, in addition to the corporate revenue effects shown here.

Under the broad-based tax shown in Table 20, about $33 billion in corporate taxes would be raised in 1986, and about $392 billion over the five-year period 1986 to 1990. This assumes that the 46 percent corporate tax rate would prevail over the forecast period. In 1990, the same corporate revenues as under current law could be raised with about a 22 percent statutory tax rate on the broader tax base. By moving toward a broader-based corporate income tax, the tax distortions among various assets in the

TABLE 20. ESTIMATED REVENUE EFFECTS FROM A COMPREHENSIVE CORPORATE INCOME TAX [a]
(By fiscal years, in billions of dollars)

| Provision | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|
| Depreciation Options | | | | | |
| ITC repealed, ACRS replaced with CRD (no indexing, accelerated rates) | 13.9 | 24.3 | 32.0 | 43.2 | 56.3 |
| ITC repealed, ACRS replaced with CRD (with indexing) [b] | 20.0 | 43.6 | 63.8 | 83.8 | 103.6 |
| ITC repealed, ACRS replaced with present-value depreciation [c] | -17.5 | -87.0 | -38.3 | -11.6 | 12.6 |
| ITC repealed, ACRS retained | 13.1 | 24.0 | 27.6 | 30.6 | 33.4 |
| ITC repealed, ACRS replaced with 100% expensing [c] | -30.0 | -139.3 | -87.3 | -65.2 | -46.2 |
| R&E Expenditures Amortized Over Five Years (Indexed) [b] | 8.7 | 11.3 | 8.8 | 5.6 | 1.5 |
| CD-FIFO Allowed for Inventories; LIFO Conformity Repealed [b] | -3.1 | -6.0 | -6.0 | -5.9 | -5.8 |
| Capital Gains Taxed in Full, Cost Basis Indexed for Inflation [b] | -0.5 | -1.3 | -2.1 | 0.6 | 1.8 |
| Expensing of All Oil and Gas and Other Mineral Development Costs Repealed; Indexed Cost Depletion Allowed [b] | 4.8 | 7.0 | 5.4 | 4.6 | 4.4 |

(Continued)

TABLE 20. (Continued)

| Provision | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|
| Percentage Depletion Repealed [b] | 0.8 | 1.2 | 1.3 | 1.5 | 1.5 |
| Energy, Rehabilitation, and ESOP Tax Credits Repealed [b] | 1.0 | 2.0 | 1.4 | 0.8 | 0.7 |
| Graduated Rates Repealed [b] | 1.6 | 6.0 | 7.9 | 7.8 | 7.9 |
| Possible Broad-Based Tax | 33.3 | 63.8 | 80.6 | 98.8 | 115.7 |
| Dividend Relief: | | | | | |
| @ 50% deduction [d] | 0.0 | -27.3 | -48.0 | -57.7 | -66.6 |
| @ 100% deduction | 0.0 | -54.7 | -96.1 | -115.4 | -133.3 |
| Possible Integrated Broad-Based Tax | 33.3 | 9.2 | -15.4 | -16.6 | -17.5 |

SOURCES: Congressional Budget Office; Department of the Treasury, *Tax Reform for Fairness, Simplicity, and Economic Growth*, vol. 1 (November 1984); and Joint Committee on Taxation.

a. Most provisions are assumed to take effect on January 1, 1986, although some are phased in over the five years. These are static estimates and do not take into account the economic effects of tax policy changes. Because of the sweeping nature of the tax provisions considered here, the estimates are imprecise; they are intended solely to provide a rough approximation of potential revenue effects. They do not include effects on individual income tax receipts.

b. Provisions included in broad-based income tax.

c. These estimates do not take account of the likelihood that corporate profits may be insufficient to absorb fully the extensive first-year deductions associated with these provisions.

d. Based on the Treasury's estimate, grossed-up for the difference in tax rates (46 percent versus 33 percent). The 100 percent deduction is estimated by doubling the 50 percent deduction. The deductions are both assumed to take full effect in 1987, instead of being phased in as proposed by the Treasury.

corporate sector could be reduced, and the statutory marginal tax rate facing corporations could substantially be lowered.

As long as a separate corporate tax remains intact, however, the system will continue to impose a distortion between corporate and noncorporate business. As an alternative to lowering the tax rate, a dividend deduction could be allowed corporations, thereby reducing the corporate-noncorporate distortion. A 50 percent dividend deduction (as proposed in the Treasury plan) would still result in a net revenue gain in corporate taxes of about $49 billion in 1990. Increasing the dividend deduction to 100 percent would result in a net revenue loss of about $18 billion in 1990; this revenue loss could be offset by higher personal tax rates and/or a broader personal tax base. The 100 percent deduction would virtually eliminate the corporate-noncorporate distortion resulting from the current tax system. Alternative ways of integrating the corporate and individual tax systems are discussed in the next chapter.

CHAPTER VIII

# INTEGRATING THE CORPORATE AND INDIVIDUAL INCOME TAXES

Corporate income is now taxed twice: when it is earned by the corporation and when it is received by shareholders in the form of dividends or capital gains. (The tax on capital gains, however, is much lighter than the tax on current dividends.) Over the years, proposals have been made to integrate the corporate and personal tax systems so that corporate income would only be taxed once, at the shareholder's marginal tax rate. For example, the tax reform proposal sponsored by former Representative Shannon (H.R. 6436, 98th Congress) includes provisions for integrating the two tax systems. The Treasury tax reform proposal also provides some reduction in the double tax on dividends.

Integration of the corporate and the personal tax systems would have several consequences. First, it would lessen the current incentives to retain earnings: there would be no differential tax effect depending on whether a firm had a high payout or low payout rate. All corporate-source income would be fully taxed when earned, regardless of what fraction was paid to shareholders. Second, it would reduce the tax-induced bias toward debt financing. Both interest and equity income would be taxed only once, at the shareholder (or bondholder) level and no distinct corporate tax would be levied on equity returns. Corporate income would be subject to the same set of graduated personal tax rates as all other types of income, because all corporate income would be assigned to shareholders. Although corporations might still help collect the tax through withholding, no separate tax would be levied on corporate income per se. Finally, full or partial integration would reduce the tax distortion between corporate and noncorporate forms of business organization.

Approaches to integrating the two tax systems include the conceptually pure partnership method as well as other less comprehensive methods. The most neutral and equitable system would be full integration using the partnership method, although this would be very difficult to carry out in practice.

## FULL INTEGRATION

Full integration of the corporate and personal tax systems could be achieved in two ways. The first would be to treat all corporations like partnerships.[1] The second would be to repeal the corporate tax and change personal taxation so that all dividends and capital gains were taxed in full at personal tax rates.

### The Partnership Method

The basic features of the partnership method are the following:

- The income of corporations would be subject to a rate of withholding tax equal to the top corporate statutory rate (currently 46 percent).
- The total pretax income of a corporation would be imputed to stockholders, whether or not cash distributions were actually made.
- Individual shareholders would include the full amount of their pro-rata share of corporate income in their taxable income under the personal income tax.
- Shareholders would be allowed a tax credit equal to the pro-rata share of corporate taxes withheld. If the amount of the credit exceeded the tax liability, the difference would be refunded.
- Capital gains and losses on stock shares would be computed relative to a cost basis increased by the amount of income imputed to stockholders and decreased by any dividend distributions. This would be done to prevent shareholders from paying a double tax: one on income when earned, a second on realization of a capital gain associated with that income. The basis would be annually indexed for inflation so that it would not decline in real terms.

Under the partnership method, the corporate income tax would be essentially a "withholding" mechanism like that now used for wages and salaries. Taxpayers would pay only the difference between the rate applied

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1 Currently, Subchapter S corporations are already taxed like partnerships, even though they are legally corporations.

to their share of corporate income and the amount withheld by the corporation. Table 21 illustrates how this would work. For a taxpayer in the 50 percent tax bracket, to whom $1000 of corporate-source income (whether retained or distributed) was imputed, withheld taxes would be $460, and an additional tax of $40 ($500-$460) would be owed. (This assumes that the corporate rate of withholding would be the current statutory tax rate of 46 percent.) For those in tax brackets below the corporate withholding rate, a tax credit would reduce the effective rate on corporate income to the individual's marginal rate. In the case of the shareholder in the 22 percent marginal tax bracket, the credit of $460 would reduce the total tax on corporate-source income to $220 ($460 corporate tax plus $220 personal tax less the $460 tax credit)--a 22 percent total effective tax rate. This contrasts with the 53 percent tax rate (inclusive of the tax on capital gains) under the current unintegrated system.

The partnership method of full integration raises several difficult problems, however. Some of these stem from the need to impute corporate income to stockholders; others have to do with tax audits, tax-exempt organizations, foreign stockholders, and the treatment of tax losses.

Stockholder Cash-Flow. Since all corporate income would be imputed to stockholders, whether or not it was paid out in the form of dividends, some stockholders in high marginal tax brackets would have to pay taxes on income they had not yet received. This could create cash-flow problems for some, and could even force some to sell stock. As long as the gap between the top individual tax rate and the corporate "withholding" rate was not large, the problem would probably not be too severe. It could be completely overcome by adopting a corporate withholding rate equal to the top personal rate.[2]

Establishing a Record Date. The partnership approach to integration would work well if stockholders held their shares for the full year--so that all income earned by the corporation could easily be imputed to the stockholders at the close of the corporation's accounting period. Complications could arise when people bought and sold shares during the year. For this reason, it would be necessary to establish a record date of stock ownership such that all corporate income would be imputed to the owners on that day. The first day of a corporation's fiscal year could be selected as the record date, and all income earned during that year would be attributable to the

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2 This suggestion was made by the Carter Commission in Canada. See Canada, *Report of the Royal Commission on Taxation* (Ottawa: Queen's Printer, 1967).

TABLE 21. ILLUSTRATIVE CALCULATIONS UNDER THE PARTNERSHIP METHOD OF TAX INTEGRATION

| | Taxpayer's Marginal Tax Bracket | | | |
|---|---|---|---|---|
| | 16 Percent | 22 Percent | 38 Percent | 50 Percent |
| Cost Basis in Shares (start of year) | $ 10,000 | $ 10,000 | $ 10,000 | $ 10,000 |
| Pretax Corporate Income | 1,000 | 1,000 | 1,000 | 1,000 |
| Corporate Tax Withheld (46 percent of income) | 460 | 460 | 460 | 460 |
| Income Imputed to Stockholder | 1,000 | 1,000 | 1,000 | 1,000 |
| Personal Tax (before credit) | 160 | 220 | 380 | 500 |
| Tax Credit | 460 | 460 | 460 | 460 |
| Net Tax Refund or Payment (-) | 300 | 240 | 80 | -40 |
| Effective Tax Rate on Corporate Income (percent) | 16 | 22 | 38 | 50 |
| Dividends Paid Out | 200 | 200 | 200 | 200 |
| Retentions | 340 | 340 | 340 | 340 |
| Cost Basis in Shares (end of year) | 10,340 | 10,340 | 10,340 | 10,340 |
| Effective Tax Rate Without Integration (percent) [a] | 51 | 53 | 58 | 62 |

SOURCE: Congressional Budget Office.

a. The effective tax rate includes capital gains taxes under the assumption that 50 percent of gains are realized in the current year and the remainder are deferred indefinitely. Corporate income is assumed to be split evenly between dividends and retentions.

stockholder on that date.[3] Any shares sold during the year would be taxed on the difference between their price and the owner's basis; no further adjustment would be necessary at the end of the year. (In effect, the difference in price and basis would be assumed to represent accurately the earnings accrued by the corporation up to the date of sale.) The subsequent owner would, however, be able to defer taxes on income earned prior to the end of the year.

Recordkeeping Requirements. The partnership method would impose a significant recordkeeping burden on stockholders, who would have to adjust their cost basis for imputed corporate income, actual dividend distributions, and inflation. Keeping track of these adjustments could be very time-consuming for investors with diversified portfolios, and would create an extra burden for those who do not now spend much time managing their portfolios.

Tax Audits. Adjustments to past corporate income resulting from tax audits would cause another administrative problem. Income might have to be recalculated for periods long after stockholders had sold their interests, and could require the opening of many shareholder tax returns for back taxes. This difficulty could be handled as it is today; all back taxes and penalties are now effectively borne by the current holders of a corporation's stock. The same principle would apply to corporations that filed amended returns: any extra tax or tax refund would accrue to current stockholders, regardless of whether they held stock during the affected year.

Tax-Exempt and Foreign Stockholders. The credit for taxes withheld at the corporate level would have to be refundable at the individual level in order to achieve neutral tax treatment among stockholders. Otherwise, low-tax-bracket shareholders would not get full credit for taxes withheld at the corporate level when they had little or no tax liability in the current year. Permitting refunds of corporate taxes deemed paid would be similar to the current system of withholding on wages and salaries: a person is issued a refund for any tax withheld in excess of his or her actual tax liabilities.

Refundability raises the issue of the treatment of tax-exempt organizations, which are not themselves subject to income taxation by statute. To the extent that tax-exempt institutions are holders of corporate stock, integration would result in payments from the Treasury to them if taxes withheld at the corporate level were fully refundable. But if the exempt status of such entities makes good sense from a policy standpoint, it is consistent

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3 This is the approach suggested by the Treasury Department in *Blueprints for Basic Tax Reform* (1977), pp. 70-73.

to extend the full benefits of integration to them. As alternatives, the Congress could deny tax-exempt entities refundability, or it could treat them like individual taxpayers and tax them at a rate that it determines to be appropriate.

A similar problem would arise in the treatment of foreign stockholders in U.S. domestic corporations. Currently, foreign stockholders are indirectly subject to the corporate income tax on income earned in the United States, and are also subject to a withholding tax on dividend distributions.[4] Nonresidents may also be liable for dividend taxes levied by their own governments. Under the strict partnership method of integration, foreign investors would be subject to the corporate withholding tax; this tax would equal the corporate tax liability (before credits) under current law. A problem arises with respect to tax credits: should foreign investors be allowed the benefits of tax preferences and credits for the withholding tax? If all credits were passed through to foreign stockholders, the United States would suffer the tax loss from the credits, but receive none of the personal taxes liable on the income imputed to stockholders. (The country of residence would reap the tax gains under this system.) If credits were not passed through to foreign stockholders, it would be the responsibility of the country of residence to provide its own relief from U.S. taxes; otherwise, double taxation would remain a problem for foreign investors. Since the United States has tax treaties with its major trading partners, these could in principle be renegotiated so that U.S. citizens investing overseas would be subject to the same rules as foreign investors in this country. The administrative problems in achieving international integration are quite complex, however, and would have to be addressed on a country-by-country basis.

Tax Losses. If tax preferences were retained under the partnership method of integration, they could be passed through to stockholders by imputation. Under a broad-based tax system, this would not be necessary, since tax subsidies would be abolished. Losses would occur only to the extent that they were real economic losses, and not a fiction of the tax code. It might, however, be desirable--and administratively possible--to pass economic losses on to stockholders. This could be done by allowing corporations to impute negative income to the stockholders, who could offset income from

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4 Unless otherwise provided by tax treaties, the withholding rate on dividends is 30 percent. In general, the actual rate is much lower among America's major trading partners, such as Germany (15 percent) and Great Britain (15 percent). The withholding tax discharges the foreigner's total liability to the U.S. Treasury with respect to those dividends.

other sources with their share of the tax loss. This is the method now used for partnerships and Subchapter S corporations. Because tax losses would be much less prevalent under a broad-based tax, however, the current provisions for carryovers would probably be adequate to average out cyclical swings in corporate income, and income imputations could be limited to positive net income.

The handling of tax losses would be substantially more complicated if, as now, the system contained many tax preferences.[5] In the partnership method of integration, a stockholder would receive a refundable credit equal to the corporate rate times his or her prorated share of taxable corporate income. If the firm had a tax loss, it could be treated in the same way tax losses are now handled for partnerships and Subchapter S corporations; losses would be imputed to stockholders and could be used to reduce income from other sources. Alternatively, losses could be carried over (with interest) and used to reduce future taxable income. Tax credits could best be handled by imputing them directly to stockholders on a current basis.

The complexity of integrating a tax system with preferences for accelerated depreciation and the investment tax credit are shown in Table 22. The corporation pays a withholding tax based on its taxable income--its economic income less the deduction for extra depreciation. In this example, the withholding tax is $414. Stockholders are imputed the firm's taxable income ($900) and allocated the amount of the tax as a credit ($414). They compute their own liability by applying their marginal rates to their shares of the taxable income, and then reducing this liability by the amount of the withholding credit. Taxpayers further reduce their liability by the amount of the investment tax credit, which is passed through directly to stockholders and does not affect the amount of tax withheld at the corporate level.

The point of this system is to make the value of accelerated depreciation and the investment tax credit the same for taxpayers in the same bracket, regardless of whether they invest in corporate shares or other unincorporated businesses. At the bottom of the table (line 14), the value of the preferences is calculated as the taxpayer's marginal tax rate times the excess depreciation plus the amount of the investment tax credit. This

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5 Under the current system of widespread tax subsidies, the problems associated with passing through tax preferences to individuals are much more difficult to solve. For an exhaustive treatment of the issues see: Charles E. McLure, Jr., *Must Corporate Income Be Taxed Twice?* (Washington, D.C.: Brookings Institution, 1979).

TABLE 22. ILLUSTRATIVE CALCULATIONS UNDER THE PARTNERSHIP METHOD OF TAX INTEGRATION WITH TAX PREFERENCES

| | | Taxpayer's Marginal Tax Bracket | | | |
|---|---|---|---|---|---|
| | | 16 Percent | 22 Percent | 38 Percent | 50 Percent |
| 1. | Pretax Corporate Economic Income | $1,000 | $1,000 | $1,000 | $1,000 |
| 2. | Depreciation in Excess of Economic Depreciation | 100 | 100 | 100 | 100 |
| 3. | Investment Tax Credit | 25 | 25 | 25 | 25 |
| 4. | Taxable Income | 900 | 900 | 900 | 900 |
| 5. | Corporate Tax Withheld (46% of Taxable Income) | 414 | 414 | 414 | 414 |
| 6. | Income Imputed to Stockholder | 900 | 900 | 900 | 900 |
| 7. | Personal Tax (before Credit) (Tax Rate x 6) | 144 | 198 | 342 | 450 |
| 8. | Tax Credit (Withholding) | 414 | 414 | 414 | 414 |
| 9. | Investment Tax Credit | 25 | 25 | 25 | 25 |
| 10. | Net Tax Refund or Payment (-) (8 + 9 - 7) | 295 | 241 | 97 | -11 |
| 11. | Net Tax on Corporate Income (5 - 10) | 119 | 173 | 317 | 425 |
| 12. | Personal Tax on Economic Corporate Income (Tax Rate x 1) | 160 | 220 | 380 | 500 |
| 13. | Value of Preferences (12 - 11) | 41 | 47 | 63 | 75 |
| 14. | Value of Preferences ((Tax Rate x 2) + 9) [a] | 41 | 47 | 63 | 75 |

SOURCE: Congressional Budget Office.

a. This is the value of tax preferences if the firm is organized as an unincorporated business rather than as a corporation.

would be the value of preferences if the firm were an unincorporated business instead of a corporation. It is equal to the difference between the tax that would be owed if the taxpayer's marginal rate were applied to corporate economic income, and the net amount payable under the integrated system (line 13). This type of integration system results in the same value of tax preferences (and tax payments), regardless of whether the firm is organized as a corporation or as a partnership or sole proprietorship.

If a corporation had negative taxable income as a result of tax preferences, no withholding tax would be levied. If the tax loss was imputed to stockholders, they would be allowed to reduce their taxable income from other sources. Thus, the full effect of the preferences would be realized, even though the firm did not have positive taxable income. If losses were not passed through to stockholders but were carried over without interest (as under current law), they would decline in value over time. This would create the same tax neutrality problem that exists under current law: firms with tax losses might be at a tax disadvantage compared to firms with positive tax liabilities. (See Chapter V for more discussion of loss carryovers.) If, however, tax losses were passed through to stockholders, corporations could become vehicles for tax shelters just as partnerships are under current law.

Repeal of the Corporate Tax

A second approach to achieving full integration of the tax system would be to abolish the current corporate tax. All dividends and unrealized capital gains (and losses) would be taxed in full at the individual's marginal tax rate. Corporate net income would be measured by changes in stock values plus dividends, rather than by accounting techniques like those currently used. This is based on the principle that any income earned and retained by a corporation should be reflected in dividends or stock prices; otherwise, the accounting "income" is not economic income. Corporate economic income could be defined as dividends plus (or minus) any appreciation (depreciation) in the value of outstanding shares.

The measurement of corporate income under this approach would probably be much more accurate than under the partnership method of integration. Since the stock of publicly held corporations is traded on the market, it can be assigned an explicit value. Moreover, dividends paid by firms are clearly measurable. Under this system, it would not be necessary to rely on sophisticated accounting formulas for measuring such items as depreciation or the value of corporate liabilities. Taxable income for stockholders in publicly traded corporations would be calculated as the sum of dividends plus accrued capital gains, as measured by the change in the

market value of their shares over the year.[6] Privately held corporations could be treated in the same way as Subchapter S corporations or ordinary partnerships are now.[7]

This approach would have clear advantages when unexpected changes in economic conditions affect the value of a firm's capital stock, changes that are not taken into account under the current depreciation system. Because fixed accounting depreciation formulas are not responsive to a firm's circumstances, they may over- or understate the actual change in the value of a firm's assets. For example, the rapid rise in energy prices in 1973-1974 and 1979-1980 reduced the value of many assets that used large quantities of energy. These changes were greatly understated by the standard allowances for depreciation. Changing market conditions, such as intense foreign competition, can also affect the value of a company's assets. In the case of the steel industry, it has been argued that the recent decline in the value of production facilities has been much greater than reflected in tax accounting statements.

While corporate income could be taxed effectively in this way, several major difficulties would arise in taxing accrued capital gains in full. The first is that, for accuracy's sake, gains must be taxed as they are accrued rather than as they are realized. This might force some shareholders to liquidate a part of their portfolios in order to pay taxes on unrealized gains. The gains would have to be indexed for inflation, since only real gains would be subject to tax. And the market value of stocks in companies that are not publicly traded would be difficult to determine. These problems might be addressed by allowing shareholders to defer the taxation of their gains until they were realized, charging them interest on the implicit loan from the government. Interest tables could be included in the tax forms, as well as a set of inflation factors for indexing gains to inflation. (See Chapter VII for further details.)

The two approaches to integration discussed in this section--the partnership method and the repeal of the corporate tax (taxing dividends and capital gains in full)--should, in principle, each produce a system of taxation

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6 John B. Shoven and Paul Taubman, "Savings, Capital Income, and Taxation," in Henry J. Aaron and Michael J. Boskin, eds., *The Economics of Taxation* (Washington, D.C.: Brookings Institution, 1980), pp. 203-220.

7 Taxable income under the partnership method would be defined as close to economic income as possible, eliminating tax credits and tax preferences.

that taxed income originating in the corporate sector at personal marginal rates.[8] Although the time patterns of government receipts would vary under the two approaches, the amounts in present-value terms might not differ appreciably. Although revenues under the repeal option would be deferred until gains were realized, the assessment of interest charges on capital gains could make up for the cost to the Treasury of deferring tax liabilities.

In practice, the two approaches could differ substantially in their effects on individual companies. Because depreciation rules under the partnership method cannot be tailored to the circumstances of individual firms, taxable income would vary depending on how a firm's change in market value compared to the average experience used as the basis for designing tax depreciation schedules.

## PARTIAL INTEGRATION

Although full integration of corporate and personal taxes would result in a more efficient system, its administrative costs would be high. Japan, Canada, and several European countries have adopted methods that reduce the double taxation of dividends but not of retained earnings. Two basic options are described below: a dividends-paid deduction and a dividends-received credit. Either of these could reduce substantially the current tax penalty for investing in corporations.

### Dividends-Paid Deduction

One approach would allow firms to deduct from their taxable income dividends paid out to shareholders, while earnings retained by the corporation would remain subject to the statutory corporate tax rate.[9] Thus, the corporate tax would be transformed into a tax on undistributed profits. To the extent that the average marginal tax rate of its shareholders was lower than the corporate rate, a firm would have a strong incentive to increase its

8 This assumes that stock market prices accurately reflect the values of the assets and liabilities of corporations.

9 Earnings sheltered by tax preferences, however, would not be taxed at the corporate level. If they were distributed, they would be subject not to the corporate tax but to the individual tax on dividends; therefore, the value of the tax preferences would be substantially reduced.

payout ratio because few shareholders would benefit from deferring the recognition of income. The dividends-paid deduction could give firms an incentive to distribute nearly all their earnings, and could thus approximate a system of de facto full integration.

This approach could largely eliminate the present tax-induced distortion in marginal investment decisions favoring the noncorporate over the corporate sector. The effective tax rate on marginal investment decisions would be equalized (on a risk-adjusted basis) across the two sectors.[10] The current bias toward corporate debt would also be reduced because stock and bond income would be taxed at the same set of graduated personal tax rates. Retained earnings, however, would remain a source of inequitable treatment among stock-owning taxpayers. For example, taxpayers in the lower-income brackets would be taxed on their share of retained earnings at the corporate rate--well above their marginal tax rate. This inequity would probably be small, since lower-income investors would probably not choose to invest in companies with low payout ratios. In this respect, however, the dividends-paid approach falls somewhat short of the standard set by full integration.

Another criticism is that it might result in higher corporate payout ratios, thereby reducing corporate investment, much of which is currently financed by retained earnings. On the other hand, such an effect would be likely to make capital markets operate more efficiently by eliminating the tax bias toward retained earnings and letting investors choose the prospects that they expect to be most profitable, instead of relegating that task to corporate executives. Reduced total investment would occur only if stockholders chose to spend their increased dividends and not reinvest them. It is more likely, however, that most of the higher dividends would be subsequently reinvested.[11] Paying out more dividends and then issuing new equity shares would have the drawback of increasing transaction costs.

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10 Except for housing, other consumer durables, and other tax-preferred noncorporate investments (state and local bonds, for example).

11 Martin Feldstein, in "Tax Incentives, Corporate Saving, and Capital Accumulation in the United States," *Journal of Public Economics*, vol. 2 (April 1973), pp. 159-171, finds that an increase in dividends by one dollar would reduce total private (corporate and personal saving) by about 25 cents. In contrast, Paul A. David and John L. Scadding, in "Private Savings: Ultrarationality, Aggregation, and Denison's Law," *Journal of Political Economy*, vol. 82 (March 1974), pp. 225-249, and Roger C. Kormendi in "Government Debt, Government Spending, and Private Sector Behavior," *American*

## Dividends-Received Credit

The dividends-received credit system of dividend relief produces the same result as the dividends-paid deduction. Under this system, taxpayers would be allowed a credit for the amount of corporate taxes on earnings used to pay dividends at the corporate level. The credit would be taken at the individual level rather than at the corporate level as with the dividends-paid deduction. (Corporations would continue to pay "withholding" taxes at the statutory corporate rate.) The credit would be fully refundable and would reduce the net marginal rate on corporate income to the individual's marginal tax rate. In computing taxable income, the taxpayer would add net dividends received to the amount of the credit, so that taxable income would include the amount of corporate income that gave rise to the dividend distribution. Under a broad-based corporate income tax, the credit would be determined with reference to the full statutory corporate tax rate--that is, the credit would equal the statutory rate times the income dedicated to dividends (tax-inclusive).[12]

## Considerations in Designing Dividend Relief

The straightforward systems of dividend tax relief discussed above raise several difficult problems when applied to existing tax systems. These problems relate to foreign shareholders, tax-exempt shareholders (pension plans, charities, and the like), tax preferences, and windfall gains on existing stock shares.

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*Economic Review*, vol. 73 (December 1983), pp. 994-1010, find that investors are "ultrarational" in the sense that they substitute corporate and personal saving about one-for-one. This implies that decreased retained earnings would not affect overall private saving in the economy.

12 For example, suppose a firm earned $100 and paid withholding taxes of $46, leaving a net of $54 to be distributed. The stockholder would receive $54, and a tax credit of $46. In calculating taxable income, the stockholder would include both the $54 dividend and the $46 credit for a total of $100. A shareholder in the 30 percent tax bracket would owe taxes of $30 (.30 x $100), but they would be more than offset by the associated $46 credit. The excess credit ($16) could be used to offset income from other sources (wages, salaries, interest) or refunded. On net, the tax on corporate income would be $30--$46 withheld by the corporation less the $16 tax refund for the individual. The total effective rate on corporate income would be the 30 percent personal rate.

Foreign Investors. Under the dividends-paid deduction, the full benefit of the tax provision would be available to all shareholders. Foreign shareholders would benefit from this provision, but the dividends they received would not be subject to U.S. tax.[13] The same problem would arise under a system of complete integration using the partnership method. If the Congress decided that foreign shareholders should not receive dividend tax relief, the dividends-received credit could be denied on a country-specific basis.[14] For example, France has been willing to extend its dividends-received credit to foreign shareholders through bilateral treaties with countries whose fiscal authorities certify that those dividends have been subject to tax in the country of residence. Other countries, such as Canada, do not allow foreign shareholders the benefit of their dividends-received credits.

Whether or not a country should provide dividend relief to foreign investors depends on its goals. If the objective of providing dividend relief is to reduce the overall tax burden on capital in order to promote investment in the corporate sector, then relief should be provided to foreign investors. Otherwise, tax rates on foreign investors would be higher, thereby inhibiting foreign investment in the corporate sector. In this case, the major negotiating issue between countries is how the cost of financing dividend relief will be split between the country where the income is earned and the country where the shareholder resides. On the other hand, if the objective is to reduce the tax on saving of domestic residents only, relief need not be provided to foreign shareholders.

Tax-Exempt Institutions. The problem of tax-exempt institutions is similar to that of foreign stockholders. If dividend relief benefits are extended to tax-exempt organizations, their corporate-source income will go completely untaxed. Under a dividends-paid deduction this effect could not be easily prevented; under a dividends-received provision, tax credits could be restricted to taxable investors, thus preventing tax-exempt organizations from receiving tax relief. In Great Britain, tax-exempt organizations are allowed the dividends-received credit, but in France and West Germany tax-exempt organizations are not allowed the credit. West Germany, does, however, allow some tax benefit to accrue to tax-exempt organizations, since the

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13. The dividends-paid deduction, however, could be denied on dividends paid to foreign shareholders. This restriction would be administratively difficult to apply on a country-by-country basis.

14. For example, higher withholding taxes on dividends paid to foreigners could be levied.

corporate tax rate is reduced from 56 percent to 36 percent on earnings used to pay dividends.[15] For a dividend relief scheme in the United States, the dividends-received credit would probably be easier to administer if benefits were not extended to tax-exempt organizations.

Tax Preferences. In the current U.S. tax system, the design of a dividend-relief system is complicated by the many existing tax preferences. An example will illustrate the potential problems (see Table 23). Suppose a corporation earning $1,000 in economic income receives tax preferences in the form of excess deductions of $200 and an investment tax credit of $100. Taxable income is $800 and gross corporate tax liability is $368 (.46 x $800), which is reduced to $268 by the investment tax credit, leaving the company with $732 ($1,000 minus $268) of after-tax earnings.

If a dividends-paid deduction was allowed, and the full $1,000 was paid out, the corporation would reduce its gross tax liability to zero, but the full $1,000 would be subject to personal taxation. At a personal tax rate of 50 percent, the tax payable would be $500. A potential problem arises here because the individual shareholder would not have been able to use the corporate preferences. If the taxpayer had been able to use the corporate preferences, the tax bill would have been reduced to $300--$200 less than without the preferences. The first column of Table 23 shows that the preferences allowed at the corporate level can be "washed out" if distributions are made from income that is shielded by tax preferences. In this situation, the corporation could reduce total taxes by distributing just enough to reduce its tax to zero, $583 in this example, and distributing to shareholders only that income that was subject to the full corporate rate. Distributing any more than this would start to wash out the value of the tax preferences.

If it was decided that tax preferences should not be washed out but should be partially passed through to investors, distributions in excess of corporate taxable income would have to be nontaxable at the shareholder level. This could be implemented by allowing the distributions from tax-preferred income to be considered a "return of shareholder capital," which is not subject to tax under current law.[16] This is shown in column 2. This

15 This is equivalent to allowing a 36 percent deduction for dividends paid at the corporate level.

16 Under current law, tax preferences can sometimes be washed out because the definition of "earnings and profits" (from which taxable distributions are paid) is based on a more comprehensive definition of income than is taxable income,

TABLE 23. ILLUSTRATIVE CALCULATIONS OF TAX PREFERENCES UNDER PARTIAL INTEGRATION

| | Dividend Deduction | | | Dividend Credit | | |
|---|---|---|---|---|---|---|
| | Full Washout | Partial Washout | Full Passthrough | Full Washout | Partial Washout | Full Passthrough |
| 1. Pretax Corporate Economic Income | $ 1,000 | $ 1,000 | $ 1,000 | $ 1,000 | $ 1,000 | $ 1,000 |
| 2. Depreciation in Excess of Economic Depreciation | 200 | 200 | 200 | 200 | 200 | 200 |
| 3. Investment Tax Credit | 100 | 100 | 100 | 100 | 100 | 100 |
| 4. Dividends Paid | 1,000 | 1,000 | 1,000 | 732 | 732 | 732 |
| 5. Taxable Income | -200 | -200 | -200 | 800 | 800 | 800 |
| 6. Corporate Tax | 0 | 0 | 0 | 268 | 268 | 268 |
| 7. Stockholder Dividends | 1,000 | 1,000 | 1,000 | 732 | 732 | 732 |
| 8. Stockholder Taxable Income | 1,000 | 800 | 800 | 1,000 | 1,000 | 1,000 |
| 9. Personal Tax (before credit) (Tax Rate x 8) | 500 | 400 | 400 | 500 | 500 | 500 |
| 10. Tax Credit | 0 | 0 | 0 | 268 | 268 | 368 |
| 11. Investment Tax Credit | 0 | 0 | 100 | 0 | 100 | 100 |
| 12. Net Tax Payment or Refund (-) (9-10-11) | 500 | 400 | 300 | 232 | 132 | 32 |
| 13. Net Tax on Corporate Income (6 + 12) | 500 | 400 | 300 | 500 | 400 | 300 |
| 14. Value of Preferences (Tax Rate x 1)- 13)) | 0 | 100 | 200 | 0 | 100 | 200 |
| 15. Value of Preferences Under Full Passthrough (Tax Rate x 2) + 3)) | 200 | 200 | 200 | 200 | 200 | 200 |
| 16. Overall Tax Rate on Corporate Income (13 divided by 1) | 50% | 40% | 30% | 50% | 40% | 30% |

SOURCE: Congressional Budget Office.
NOTE: In all cases, the stockholder is assumed to be in the 50 percent tax bracket.

allows a passthrough of the tax preference for depreciation, but not for the investment tax credit. (The credit does not affect taxable income.) The third column allows a full passthrough of preferences including the investment tax credit.

The problem of whether to wash out or pass through tax preferences to shareholders also arises with respect to dividends-received credit plans. If preferences are to be passed through, the dividends-received credit system must be designed so that shareholders receive the full benefit of tax preferences. If preferences are to be washed out, shareholders must pay full tax on corporate economic income--less the tax withheld at the corporate level.

In Table 23, the dividend credit case assumes that $732 (the amount remaining after corporate taxes) is distributed to shareholders. The tax preferences can be washed out under a dividends-received credit plan by allowing the shareholder (in the 50 percent marginal tax bracket) a credit for corporate withheld taxes of $268. The shareholder would also add this amount to the dividend (this is referred to as a "gross-up") to derive a taxable income amount of $1,000. The shareholder's taxes would be $500 (50 percent of $1,000) less the credit of $268 for a net amount of $232. Total taxes would be $232 in personal taxes plus $268 in corporate taxes, yielding $500--the same amount that would result if the investor's marginal rate was applied to corporate economic income without regard for tax preferences.

Tax preferences could be partially passed through by allowing taxpayers a credit of $268 plus the amount of the investment tax credit ($100) for a total credit of $368. The shareholder's taxable income would be computed as the dividend amount ($732) plus a gross-up equal to $268, leaving the shareholder with taxable income of $1,000. The shareholder's tax would be $500 (50 percent of $1,000) less the credit of $368, for a net tax of $132. Total taxes on corporate income would be $132 plus the corporate tax of $268, yielding $400. The value of preferences would be $100--one-half of the $200 needed for full passthrough.

Preferences could be passed through completely by allowing a shareholder credit for taxes in excess of actual taxes paid at the corporate level. In the example, the corporation pays $268 on taxable income of $800. If the shareholder credit is calculated as the corporate tax paid plus the product of

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as currently defined. For example, interest on tax-exempt bonds is included in earnings and profits, but not in taxable income. Thus, if tax-exempt interest is distributed, shareholders must pay tax on that income even though it is tax exempt at the corporate level.

deductible tax preferences ($200) and the taxpayer's own marginal rate (50 percent), the credit would be $368 ($268 + ($200 x .50)), instead of $268. In addition to this higher credit, the stockholder would directly receive the $100 investment tax credit, for a total credit of $468. This would reduce personal taxes to $32, and the total liability on corporate income to $300 ($32 plus $268 in corporate tax). The value of the preferences would be $200, which is consistent with full passthrough.[17]

Whether tax preferences should be washed out, partially washed out, or passed through to shareholders is a difficult question. If tax preferences were washed out under dividend relief, all distributed corporate income would be subject to the same set of marginal tax rates, regardless of whether it was fully taxable or tax preferred. In this case, integration would only apply to corporate income actually subject to tax under current law. Conversely, if preferences were passed through, fully taxable income would be subject to the personal tax (and not the corporate tax), and tax-preferred income would bear neither tax. Currently, partnerships are allowed full passthrough of preferences to the participants. Tax subsidies would continue to offer a preference for certain activities if passed through; to the extent they were washed out, they would not. If dividend relief was provided, the Congress would have to decide whether certain activities deserved to have their preferences continued or not. Depending on how tax preferences are handled, the administration of a dividend-relief system can be extremely complex.

Windfall Gains on Old Stock Shares. One final concern in providing dividend relief is the treatment of new as against old equity issues. In general, dividend tax relief would reduce the tax burden on both existing and new capital; similarly, it would reduce the taxes associated with both existing and new stock issues. This would provide owners of existing capital with windfall gains because new investors would be willing to pay more to purchase existing shares. (Investors would be willing to pay more because of the associated reduction in the tax on dividends.) One way of reducing the cost of dividend relief and avoiding windfall gains on old shares would be to apply dividend relief to new shares only. In principle, this could be achieved by allowing a dividends-paid deduction for new share issues, but not for already existing issues. It would, however, be difficult to prevent tax avoidance techniques from undermining the barrier between old and new issues.

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17 A more extensive discussion of the relationship between dividend relief plans and tax preferences is found in McLure, *Must Corporate Income Be Taxed Twice?*, pp. 92-145. McLure discusses several alternative ways of washing out or passing through tax preferences.

Allowing dividend relief on new issues could be achieved through the dividends-paid deduction, but would probably be administratively impractical under the dividends-received credit approach. The dividends-paid deduction would effectively integrate the corporate and personal tax systems for marginal investment decisions. New corporate investment financed by new equity shares would face only the personal marginal tax rate (or the corporate tax rate if the earnings were retained), but would not face the current two-tier tax on dividends. Thus, the current tax distortions between corporate and noncorporate investment, and between debt and equity finance, would be substantially lessened.

The category of new equity is restricted to new share issues and would not apply to new investment financed by retained earnings. As retained earnings are the accumulated income from existing investments, they are attributable to existing stock shares. Moreover, any future income that is generated from those retained earnings, whether it is retained or paid out, is also attributable to existing shares.[18] Since the market value of existing shares already reflects the future income and taxes of the firm, they are not subject to double taxation. Therefore, dividend relief need only be provided for new corporate equities in order to reduce the burden of double taxation on marginal investment financed by that method.

Two methods of providing dividend relief to new shares would be to allow corporations to deduct a pro rata share of dividends associated with net new shares, or give them a deduction for a normal return on the value of new shares.[19] The first method would allow firms to deduct a portion of

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18 In effect, investments financed out of retained earnings face only the corporate tax, but not the personal tax on dividends. The personal tax on dividends is still paid when distributions are made from the investments, but it is offset by the tax saving that occurs when the firm decides to retain earnings instead of distributing them. As long as the corporation earns a normal return, after corporate tax, investors are basically indifferent between dividend distributions today and distributions in the future. See Alan J. Auerbach, "Tax Integration and the New View of the Corporation Tax: A 1980's Perspective," *Proceedings of the National Tax Association--Tax Institute of America* (1981), pp. 21-27.

19 For further discussion of these proposals, see American Law Institute, "Reporter's Study on Corporate Distributions," in *Federal Income Tax Project, Subchapter C* (Philadelphia: The American Law Institute, 1982), pp. 356-400; and William D. Andrews, "Tax Neutrality Between Equity Capital and Debt," *Wayne Law Review*, vol. 30 (Summer 1984), pp. 1057-1085.

dividends attributable to new shares, after taking into account any repurchases of old shares. The second method would treat net new equity like debt, and the normal return would be calculated as the imputed interest on the value of new issues.[20] This deduction would be allowed regardless of whether the firm actually distributed earnings to its shareholders. The economic effect of these methods would be about the same: they would both eliminate the corporate tax on income from investments financed by new equity issues. This income, however, would remain subject to taxation under the personal income tax.

## Foreign Experience with Dividend Relief

Japan, Canada, and many European countries have provisions that reduce the possible double taxation of corporate income. In designing their dividend-relief provisions, these countries have had to resolve the issues discussed above.

Dividend tax relief in France, Great Britain, and Canada, for example, is provided by allowing shareholders a tax credit against their personal income tax. France and Canada allow shareholders partial relief from double taxation by providing a tax credit equal to 50 percent of dividends received. (Since their corporate tax rate is 50 percent, the credit amounts to half the corporate tax paid at the corporate level.)[21] Great Britain also allows shareholders a tax credit for about half (49.3 percent) of corporate income taxes. In France and Great Britain, detailed provisions are made so that corporate income shielded by tax preferences is subject to full personal taxation when distributed. To the extent that tax-preferred income is paid out, the preferences are "washed out."[22] In contrast, Canada allows preferences to be passed through to shareholders by allowing them the dividend tax credit even when earnings are not subject to corporate taxation.

West Germany and Japan also have dividend-relief provisions that allow stockholders a tax credit, but in addition they employ a "split-rate" corporate tax structure under which corporate earnings used to pay divi-

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20 Net new equity would be the amount of cash raised through new issues, less the cash used to repurchase old shares or to purchase shares in other companies.

21 Distributed corporate income is basically subject to full personal taxation and one-half the corporate tax.

22 See McLure, *Must Corporate Income Be Taxed Twice?*, pp. 50-55.

dends are subject to a lower rate of tax than those retained. In West Germany, the statutory corporate tax rate is 56 percent, but if income is distributed the tax rate is reduced to 36 percent on those earnings. (This reduction in tax rate is equivalent to a partial deduction for dividends paid of 36 percent.) Stockholders receive a tax credit equal to the full amount of tax withheld at the corporate level (computed at the lower 36 percent tax rate). Unlike other countries, the German system provides complete relief from the corporate tax on those earnings used to pay dividends. Although tax-exempt organizations and foreign investors cannot take advantage of the tax credit for dividends, they receive some relief through the lower corporate rate on earnings used for distribution. Like France and Great Britain, West Germany includes provisions to wash out tax preferences if the income they shield is distributed to shareholders.[23]

The split-rate system in Japan provides only partial relief from double taxation. The basic corporate tax rate is reduced by 10 percentage points--from 42 percent to 32 percent--on earnings used to pay dividends, and taxpayers receive a credit equal to 10 percent of dividends received.

Sweden, instead of using tax credits or reduced corporate tax rates to provide dividend relief, employs a deduction for dividends paid related to new equity issues. Corporations are allowed to deduct dividends paid on shares issued after 1978 up to an annual maximum of 10 percent of the issue proceeds.[24] This deduction is good for a period of up to 20 years. The economic effect of this provision is to lessen substantially the double tax burden on new investment, without the cost of providing relief to all existing stockholders. The corporate tax is not fully eliminated on dividends, however, as the restrictions result in an overall tax burden somewhat in excess of the personal tax alone.[25]

## Dividend Relief Proposals in the United States

Several proposals have been made to alter the taxation on dividends in the United States. In 1978, House Ways and Means Committee Chairman Al

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23 Ibid., 55-69.

24 Total dividend deductions over time cannot exceed the original value of the associated new shares.

25 In order to fully eliminate the corporate tax on dividends, deductions would have to be allowed in perpetuity and not limited to the historical cost of the new share issue.

Ullman proposed that shareholders be allowed a tax credit initially equal to 10 percent of dividends received, rising over time to 20 percent.[26] Total credits allowed individuals were not to exceed corporate tax liabilities. Thus, tax preferences would have been washed out to the extent that tentative individual credits exceeded corporate taxes. Tax-exempt organizations and foreign investors were to be denied the shareholder credit.

In a recent bill, Representative Shannon also proposed a shareholder credit as a way of providing dividend relief.[27] The credit would not be a flat percentage, but would depend upon the ratio of a firm's dividends to its "earnings and profits," as defined by the tax code.[28] For example, if a corporation distributed 10 percent of its earnings and profits, the allowable shareholder credit would be 10 percent of the corporation's federal tax liability. If the firm had $1,000 in earnings and profits, $800 in taxable income, and paid $368 in taxes (46 percent of $800), the tax credit would be $36.80 (10 percent of $368). The economic effect of the proposal would be to provide full dividend relief for corporate economic income that is fully taxed; tax preferences would be essentially washed out on a pro rata basis. In the example, the 20 percent ($200) of tax-preferred income means that the tax credit is reduced 20 percent, from $46 to $36.80.

The Shannon proposal also calls for current taxation (at the personal level) of all retained earnings and profits. Shareholders would be treated as having received their pro rata share of earnings, even if they had not, in fact, been distributed by the corporation. For purposes of the shareholder tax credit, firms would be deemed to have distributed 100 percent of their earnings and profits. Shareholders would receive credits limited to 100 percent of the firm's corporate tax liability, with preferences essentially washed out in full. The overall effect of this proposal would be to integrate fully the corporate and personal tax systems; it is not strictly limited to relieving the tax on dividends.

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26 Representative Al Ullman, *Congressional Record*, March 22, 1978, pp. 7978-7980.

27 H.R. 6436, 98th Congress.

28 "Earnings and profits" is different from taxable income in that it is a more comprehensive definition of income. For example, it includes tax-exempt interest income and excludes part of the depreciation expense allowed under ACRS.

The recent tax reform package presented by the Administration calls for a dividends-paid deduction as a way of reducing the tax burden on income used to pay dividends. Under this proposal, corporations would be allowed to deduct 50 percent of dividends paid, thereby providing a partial reduction in the double tax on earnings used to pay dividends.

## REVENUE EFFECTS

Integration under the current definition of the corporate tax base could substantially reduce tax revenues. In conjunction with a broadening of the corporate tax base, however, the revenue loss could be substantially less. By itself, broadening the corporate tax base would raise significantly higher revenues than paid under the current law. In order to be revenue neutral, the extra revenues could be used either to reduce the statutory rate of corporate tax or to lower the total effective rate on corporate income through integration. The Treasury's reform proposal does some of both: the revenues from a broader tax base would be used in part to reduce the statutory corporate tax rate, and in part to reduce the tax rate on income used to pay dividends. The overall revenue effects from integration would depend crucially on the method that was chosen, on how foreigners and tax-exempt organizations were treated, on the extent dividend payouts were changed, and on how investors adjusted their portfolios.

Integration could allow existing stockholders to reap large windfall gains (through lower total taxes) if the current corporate tax system remained intact. Combined with a broadened tax base, however, the changed system would produce offsetting gains and losses. The net gain or loss would depend on each taxpayer's specific circumstances and investments.

## CHAPTER IX

# A CORPORATE CONSUMPTION TAX

Economists and policymakers have shown a growing interest in using consumption instead of income as the basis for taxation. The basic attraction of the consumption (or expenditure) tax is that income from net increases in savings is not subject to taxation; therefore it does not interfere with decisions to consume or save. Under a consumption tax, the after-tax rates of return on all marginal investments equal the pretax rates of return. The principles of consumption taxation apply to corporations as well as to individuals; for that reason, the adoption of a consumption tax should involve not only changes in personal taxation but changes in the taxation of businesses--both corporate and noncorporate.

Consumption-tax treatment of corporations could mean either repeal of the corporate income tax or change to a corporate cash-flow tax. Both these options would require full consumption-tax treatment of individuals in order to be completely neutral among different sources of capital income. Their economic effects would be quite similar because in both cases the after-tax return from an investment would equal its pretax return.[1]

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1 The basic equivalance between no corporate tax and a cash-flow tax can be demonstrated by an example. Suppose a company buys an asset for $1,000 today that earns net revenue of $1,100 a year from now. (The asset earns no subsequent revenue and is assumed to be worthless at that point.) If no corporate tax exists, the company earns equal pretax and after-tax returns of 10 percent. Under a cash-flow tax, the company would be allowed to deduct the $1,000 investment today, but would have to pay taxes on the $1,100 in revenue a year from now. If the tax rate is 25 percent, the company has a tax saving of $250 today; the company's net investment is therefore only $750--that is, $1,000 minus the $250 tax saving. The tax on the revenue is $275, yielding net revenue of $825. The after-tax return to the company is also 10 percent, since $825 has been earned on a net investment of $750. The cash-flow tax is equivalent in effect to repealing the corporate tax on new investment because it does not alter the after-tax return earned on an investment.

## REPEAL OF THE CORPORATE INCOME TAX

The corporate income tax is levied on savings as represented by stock ownership, and hence its repeal would be consistent with the use of a consumption tax base. In a personal consumption tax system, purchases of corporate stock or bonds would be counted as savings and would be deductible (or their return would be untaxed), while consumption financed by sales of securities would be taxed in full. Since corporate stock would be treated like other financial assets, such as bonds or savings accounts, an additional tax on corporate income would not be necessary. This is the treatment of corporate income presented in the model consumption tax outlined in the Treasury Department's 1977 volume *Blueprints for Basic Tax Reform*. Under a pure personal consumption tax regime, including the repeal of the corporate income tax, the returns from all assets would be exempt from tax; therefore, the tax would be neutral with respect to the allocation of all types of capital across different uses.

The repeal of the corporate tax would provide large windfall capital gains to present owners of capital assets. It would also reduce the tax burden on foreign investors without necessarily bringing any assurance from foreign countries that American investors would be treated in a like manner. The reduction in federal revenues would necessitate higher consumption tax rates than if consumption tax rules were applied only to new investment; and the higher rates could have negative effects on work incentives. Since a consumption tax system requires only that new investments be subject to a zero tax rate, its application to existing assets is not required. (Taxation of the returns to old savings does not distort new decisions, which shape the composition of new investment.)

## A CORPORATE CASH-FLOW TAX

An alternative to repealing the corporate income tax is to restructure it into a consumption or "cash-flow" tax.[2] Corporations, like other businesses, would be taxed on the difference between their gross receipts and their cash outlays for all production inputs. (In a personal consumption-tax system, unincorporated businesses would be taxed on a cash-flow basis regardless of what was done with the corporate tax.)

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2 A thorough description of cash-flow tax alternatives is provided in Institute for Fiscal Studies, *The Structure and Reform of Direct Taxation* (London: George Allen & Unwin, 1978).

The enactment of a cash-flow tax on corporations would not entail the large upfront revenue loss or windfall gains that would result from full repeal. A cash-flow tax would effectively eliminate the expected tax on new corporate investments, but it would not reduce taxes on existing assets (unless tax rates were changed). Consequently, current asset owners would not receive large windfall gains as they would under the repeal option already discussed. Thus, the cash-flow tax might be viewed as a transition system that would effectively repeal the corporate tax in the long run. The basic structure of one version of a corporate cash-flow tax would include:[3]

- Full expensing of capital investment. All new purchases of capital assets would be deducted (expensed) in the year of acquisition. Investment would be defined to include plant and equipment, inventories, expenditures on R&E, and outlays on mineral resource exploration and development--basically, all cash paid out, whatever its purpose.

- Full inclusion in cash flow of all proceeds from the sale of assets. As all asset costs would be expensed, all sales proceeds would be taxed in full. This would eliminate the need for depreciation accounts for assets, or for complex provisions defining capital gains. Under this system, as long as the buying and selling firms were taxed at the same marginal rate, the combined revenue effect of an asset sale and purchase would be zero.

- Net new borrowing (new borrowing less repayments on old debt) would be included as positive cash flow and would, therefore, be taxable. To the extent that the additional borrowing was used to buy a capital asset, it would be offset by the first-year deduction and would result in no net tax liability. Interest and principal payments would be deductible expenses (cash paid out), and interest and principal receipts would be taxable.

- No change would be made in the present treatment of transactions related to equity owners. The cash raised by issuance of new stock would not be taxed, nor would cash used to buy shares in any resident corporation be deductible. Dividend payments would not be deductible.

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3 These are the provisions outlined in Henry J. Aaron and Harvey Galper, "Reforming the Tax System," in Alice M. Rivlin, ed., *Economic Choices 1984* (Washington, D.C.: Brookings Institution, 1984).

Table 24 compares the provisions of a corporate cash-flow tax to those of the current income tax, as well as to those of a comprehensive corporate income tax. In conjunction with the corporate cash-flow tax, the personal tax system would also be based on consumption, and the cash-flow provisions related to corporations would also apply to unincorporated businesses. One of the striking features of this table is the similar treatment of many items by the cash-flow tax and the current income tax. Indeed, the cash-flow tax would probably involve a much less radical alteration of the corporate tax base than would redefining the tax base to meet a comprehensive definition of income.

For example, many assets now receive what amounts to cash-flow treatment when account is taken of depreciation allowances, the investment tax credit, and other investment subsidies. Investments treated this way include three-year and five-year ACRS property, R&E expenditures, and mineral development costs. Moving to a cash-flow tax would require other investments such as buildings and inventories also be expensed. In stockholders' equity transactions no changes would be necessary, except that the 85 percent dividends-received deduction would have to be increased to 100 percent. Corporate borrowing would present the largest adjustment, as net new borrowing would be taxable while repayments (both interest and principal) would be deductible.

Corporate Debt. Under the cash-flow tax, there are alternative methods of handling corporate debt financing. The method described above--the inclusion of new net borrowing in the tax base and the deduction of all debt service payments--is equivalent to excluding both sides of the transaction from the definition of the tax base. Under the alternative treatment, loans would not be included in the tax base and no deduction would be allowed for repayments of principal or interest, thereby fully excluding debt transactions from the tax base.[4] In most circumstances, the economic effect of these alternatives would be the same--no net tax liability in present-value terms--even though the pattern of tax deductions and tax payments would differ significantly. Thus, the choice of how to handle debt under a cash-flow tax would be based on other considerations, such as administrative convenience or compliance costs.

One advantage of the full inclusion method is that the debt-financed acquisition of an asset would result in no immediate tax liability, since the

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4 The cash-flow tax suggested by Robert E. Hall and Alvin Rabushka in *The Flat Tax* (Stanford: Hoover Press, 1985) does not include borrowing in the tax base, nor are debt service payments deductible.

TABLE 24. COMPARISON OF PROVISIONS UNDER ALTERNATIVE CORPORATE TAX SYSTEMS

| Provisions | Current System | Cash-Flow Tax | Comprehensive Income Tax |
|---|---|---|---|
| **Revenues** | | | |
| Sale of Goods and Services | Included in full | Included in full | Included in full |
| Sales of Capital Assets | Nominal gain included in full [a] | Proceeds included in full | Real gain included in full |
| Accrued (unrealized) Real Gains on Financial Assets and Liabilities | Not included | Not included | Included in full |
| **Deductions** | | | |
| Purchases of Materials | Deductible in full | Deductible in full | Deductible in full |
| Wages and Salaries | Deductible in full | Deductible in full | Deductible in full |
| Purchases of Fixed Assets | Depreciated under ACRS | Expensed | Depreciated according to economic rates |
| Investment Tax Credit | 6%-10% | None | None |
| Research & Experimentation Costs | Expensed plus 25% incremental credit | Expensed | Amortized over useful life |
| Mineral (including Oil & Gas) Development Costs | Expensed | Expensed | Cost depletion over reserve life |
| Inventories | Valued at cost by LIFO, FIFO, and other methods | Fully deducted as acquired | Valued by constant-dollar FIFO |
| **Debt Service** | | | |
| Interest Expense | Deductible in full | Deductible in full | Only real interest deductible |
| Interest Received | Included in full [b] | Included in full | Real interest included in full |
| Principal Repayments | Not deductible | Deductible in full | Not deductible |
| Increase in Borrowing | Not included | Included in full | Not included |
| Increase in Lending | Not deductible | Deductible in full | Not deductible |

(Continued)

TABLE 24. (Continued)

| Provisions | Current System | Cash-Flow Tax | Comprehensive Income Tax |
|---|---|---|---|
| **Equity Accounts** | | | |
| Increase in New Shares | Not included | Not included | Not included |
| Purchase of Shares | Not deductible | Not deductible | Not deductible |
| Dividends Paid | Not deductible | Not deductible | Not deductible [c] |
| Dividends Received | 85% excluded | 100% excluded | 100% excluded |
| **Other Provisions** | | | |
| Rates: Regular | 15%-40% on first $100,000; 46% thereafter | Flat statutory rate | Flat statutory rate |
| Capital Gains Rate | 28% [d] | Same as regular rate | Same as regular rate |
| **Net Operating Losses** | Limited carryovers | Carryover with interest | Carryover with interest |
| **Indexation of Basis** | None | Not needed | All asset and liability accounts |

SOURCE: Congressional Budget Office.

a. Taxed at a reduced rate.

b. Except for holdings of tax-exempt bonds.

c. Might be deductible under partial integration of personal and corporate tax systems.

d. Rate is graduated; 28 percent is the top rate and applies to taxpayers in the 46 percent regular tax bracket.

inclusion of the loan would just offset the first-year deduction for the capital asset. Similarly, as the asset earned income over its productive life, the income would be offset by the associated deductions for principal and interest payments. By contrast, if borrowing was not included (and debt service payments not deductible) the debt-financed purchase of an asset could result in a large tax loss in the year of acquisition because of the deduction for the cost of the capital asset. To the extent that tax losses were not refundable or carried over with interest, the first-year write-off would not be sufficient to assure a zero effective tax rate. The full annual accounting of debt transactions provides a much better matching of the cash flows that a firm would actually experience, thereby reducing the urgency for changing the rules relating to carryovers. For all practical purposes, this method of handling debt could be extended to cover equity issues as well.[5]

Compared with the current tax law, the cash-flow tax would offer several advantages: it would eliminate the current bias toward debt-financing, and it would be neutral with respect to the mix of physical capital.[6] These gains would be in addition to the general elimination of the bias against saving and investing. The expensing of all capital assets would ensure that the expected tax rate on every asset, regardless of its true economic depreciation rate, was zero. Moreover, inflation would have no effect on asset tax rates as it does under the current tax system. Administratively, the cash-flow tax would eliminate the need to maintain depreciation or inventory records for tax purposes, or to keep records on the historical cost basis of any other physical or financial asset.

## INTEGRATING A CORPORATE CONSUMPTION TAX WITH THE PERSONAL INCOME TAX

As mentioned above, either a corporate cash-flow tax or no corporate tax would be consistent with a personal consumption tax. Under a personal consumption tax, all income from savings--whether in a bank account or in corporate equities--would be exempt from tax. The revision of the corporate and personal taxes so as to exempt all income from savings from tax would be required if the basic purpose of a consumption tax was to be

5 In this case, the proceeds from new stock issues would be included in cash flow; dividends or other distributions would then be deductible in full.

6 More precisely, it would eliminate the distortions in the composition of corporate output resulting from the nonneutral tax treatment of assets used to produce different kinds of goods and services.

achieved. Otherwise, effective pretax and after-tax interest rates (or other forms of capital return) would diverge and the system would not be neutral with respect to saving decisions.

The adoption of a corporate cash-flow tax, however, need not necessarily be accompanied by major changes in the current individual income tax. The cash-flow rules in Table 24 could be limited to corporations, with other unincorporated businesses and individuals remaining subject to current law. Such a mixed tax system, however, would create several problems.

By eliminating the tax on corporate earnings (either through repeal of the corporate income tax or by use of a cash-flow tax), investors would be able to accrue substantial wealth in corporate stock that would be taxed at low rates or not at all. Corporate income would be subject to dividend taxes or deferred taxes on realized capital gains under the personal income tax. The total tax would likely be much lower, however, than if income was taxed in full on a current basis. Even if the individual tax continued to be based on income, capital income coming from corporations would very likely be taxed at a much lower rate than labor income.

Another complication would arise to the extent that investors could borrow funds to purchase corporate stock. They would be allowed interest deductions but would be able to defer taxes on the income earned on their shares. This is analogous to the problem that now arises with regard to debt-financed investments in partnerships engaged in tax-favored activities, such as oil and gas drilling and real estate. Investors could profit from the tax system without increasing the pool of available savings.

A further problem would arise in the distinction between corporate and noncorporate business. Effectively repealing the corporate tax might motivate other businesses to change to the corporate form of business organization. They could defer taxes on current income by switching from a partnership or proprietorship to the corporate form. This incentive would be present if a cash-flow tax was adopted for corporations while current tax rules for investments remained in effect for other businesses. Moreover, if cash-flow rules were extended to all businesses, the personal tax system would no longer be an "income" tax but would approximate a consumption tax.

These problems might be eased if the current rules regarding capital gains were changed so that accrued gains were taxed like other income. This could be approached by reducing the capital gains exclusion or adjusting it to take account of the effects of inflation and tax deferral. (See the discussion in Chapter VII on this point.) Reducing the benefits of tax defer-

ral would lessen the opportunity for investors to "game" the tax system. In fact, taxing accrued capital gains in full would be almost equivalent to integrating the personal and corporate tax systems; corporate income would then be taxed only at the shareholder's marginal tax rate. As noted in Chapter VII, however, taxation of accrued capital gains would present some problems of its own.

## RECENT CORPORATE CONSUMPTION TAX PROPOSALS

A number of tax reform proposals have included changes in the tax base that would partially or fully exclude corporate capital income.

### The Kemp-Kasten Proposal

The tax reform proposal put forth by Congressman Jack Kemp and Senator Bob Kasten (Kemp-Kasten, H.R. 777, S. 325) retains an income tax base, but extends cash-flow type rules to newly acquired plant and equipment. It would not provide for actual expensing of asset costs, but its depreciation rules would be equivalent (in present-value terms) to expensing.[7] The depreciation rules would apply to all property that now qualifies for ACRS: machinery and equipment, buildings and structures, and public utility property. Research and experimentation expenditures and mineral resource development costs would also be effectively expensed. The investment tax credit would be repealed. For a large share of new corporate assets, this would effectively wipe out the corporate tax, leaving corporate income to be taxed at the personal level. Dividend and interest payments would still be taxed to individuals and interest payments would be deductible. Because the effective tax rate on capital gains would remain lower than the tax on other income, corporate income would be taxed at less than the investor's marginal rate on labor income.[8]

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7 Depreciation allowances would be indexed for inflation, resulting in deductions equivalent to expensing at a real discount rate of 3.5 percent.

8 The Kemp-Kasten provision for capital gains would allow taxpayers the option of full taxation of realized real gains (the cost basis would be indexed for inflation), or a 40 percent exclusion of realized nominal gains (no basis indexing). In either case, taxpayers would face a lower effective rate because gains would be taxed not on accrual but on realization.

Some advocates of reduced tax rates on capital income would view this as a sensible compromise between full taxation of capital income (as under a comprehensive income tax) and zero taxation of capital income (as under a pure consumption tax). Expensing of capital assets would also have the advantage of being neutral among many types of capital in the corporate sector, since equipment and plant would face the same effective tax rate (zero). But nonexpensed assets, such as inventories and land, would be effectively taxed at much higher rates.

The expensing of capital assets under Kemp-Kasten in the corporate sector would virtually eliminate the corporate tax on those assets; expensing of capital in the noncorporate sector would be tantamount to wiping out the personal tax on those assets. But the distortion between forms of business organization would remain--income earned in the corporate sector would be taxed at higher rates than that in the noncorporate sector.[9] Furthermore, since no changes would be made in the treatment of interest, a bias in the tax system toward corporate debt financing would remain.

## Comprehensive Plans

Several proposals for comprehensive consumption taxes have been made recently, including those by Congressman Cecil Heftel (H.R. 1165), by Henry Aaron and Harvey Galper (Aaron-Galper), and by Robert Hall and Alvin Rabushka (Hall-Rabushka).[10] The tax base of the Heftel and Aaron-Galper proposals is annual cash flow; that of the Hall-Rabushka system is annual labor compensation. The tax bases are equivalent (on average), because when viewed over a person's lifetime the present value of labor earnings equals the present value of consumption plus any estate.

Cash Flow vs. Wage Taxation. The equality of cash-flow and wage taxation was shown in Chapter VI. In general, if taxpayers have the same labor earnings, and both earn the same market rate of return on their investments, the present value of their labor earnings over their lifetimes will equal the present value of their consumption plus any estate.

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9 This distortion would remain because corporate dividends and capital gains would be taxed at the personal level.

10 The Aaron-Galper proposal is described in Aaron and Galper, *"Reforming the Tax System."* The Hall-Rabuska proposal is outlined in Robert E. Hall and Alvin Rabushka, *Low Tax, Simple Tax, Flat Tax* (New York: McGraw-Hill Book Co., 1983); and in Hall and Rabuska, *The Flat Tax*.

This equivalence holds even if investors earn above-market rates of return. For example, suppose a person earns $12,500 in labor income this year and decides to invest it all in an asset that earns a 20 percent return, compared to an average market rate of 10 percent. The investor is assumed to sell the asset at the end of the year, using the proceeds for consumption. Under a 20 percent wage tax, the investor owes taxes of $2,500 in the first year and no taxes in the second year; the present value of taxes is therefore just $2,500. He or she would be able to consume $12,000 in the second year, the present value of which is $10,909.[11]

With a 20 percent consumption tax, the investor would owe no tax in the first year, investing the full $12,500 in the asset. In the second period, the investor would be able to sell the asset for $15,000, but would owe taxes of $3,000 leaving a net of $12,000 for consumption. Again, the present value of consumption ($10,909) is the same as under a wage tax. This shows that the taxpayer would be indifferent between the two types of tax systems, even if prospective rates of return differed from the average market interest rate.[12]

A consumption tax may be perceived to be more fair than a wage tax because it is seen as imposing higher taxes on successful investors than a wage tax. As the above example demonstrates, however, the taxpayer is indifferent between the two systems, regardless of the success or failure of the investor's portfolio. This means that the wage tax base of the Hall-Rabushka tax reform plan is basically equivalent (in present value terms) to the cash-flow base proposed in the Aaron-Galper and Heftel plans.

Debt Finance. All of these consumption tax proposals would retain a separate tax on business. The primary distinction among the business tax bases is the treatment of debt finance. In the Heftel and Aaron-Galper

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11 $12,000 equals $12,500 in earnings less $2,500 in taxes plus $200 in interest (20 percent of $10,000). $10,909 equals $12,000 discounted by the 10 percent market rate of interest.

12 This conclusion may not hold if the scale of the investment is limited. In the example, the equality would not hold if the investor was limited to investing only $10,000 in the high-yield asset. In this case, the investor would not be allowed to use the tax saving of $2,500 under the consumption tax to increase the investment in the high-yield asset. If the $2,500 was invested at the market rate of return (10 percent), the taxpayer's present value of consumption would be $10,727 under the consumption tax, $182 less than under a wage tax. In this case, the taxpayer would prefer the wage tax system.

plans, debt is handled under the full inclusion method; increased borrowing counts as taxable cash flow, and principal and interest payments are deductible. By contrast, the Hall-Rabushka plan excludes debt-related transactions; increased borrowing is not taxable, and principal and interest payments are not deductible. As mentioned previously, this structural difference makes little economic difference. All three plans handle stock issues by firms in the same manner as current law does: proceeds are not taxable, and dividends are not deductible.

Each plan would allow firms to expense all capital expenditures. So that firms could realize the full value of this immediate write-off, the Aaron-Galper and Hall-Rabushka proposals would allow them to carry over indefinitely their net operating losses with interest. The Heftel proposal would permit losses to be carried over indefinitely, but has no provision for accruing interest on the carryover.

Personal Taxation. The three proposals would also impose consumption tax treatment on individuals. As mentioned previously, the Hall-Rabushka plan only taxes labor income, thus exempting all interest, dividends, capital gains, and other capital income from the tax base; neither does it impose any tax on inheritances or bequests. The Aaron-Galper and Heftel plans tax individuals on their consumption (total income less saving). They allow a deduction for all saving, but include returns from saving in the tax base. Bequests are taxed as consumption. The Hall-Rabushka plan defines the tax base as the present value of labor income while the Aaron-Galper and Heftel plans define the base as the present value of the lifetime capacity to consume; the essential distinction being in their treatment of bequests and inheritances.

Although the plans differ in many respects, such as rate structure and personal deductions and exemptions, the ultimate effect of the provisions for the taxation of businesses under all three plans would be the virtual elimination (on average) of taxes on capital income in the long run.

## Transition Considerations

In moving the current corporate income tax system to one based on cash flow, several transitional problems would have to be addressed. These relate to the treatment of existing assets (both financial and physical) and liabilities, as against new assets and liabilities.

Under one version of a cash-flow tax, all asset acquisitions would be deductible and new borrowing would be taxable (with principal and interest

deductible). The transitional problems would relate to the treatment of existing assets and liabilities. Should a firm be allowed an immediate write-off for existing assets? Should a firm be required to include its existing liabilities as taxable cash flow (with future deductions for interest and principal)? As discussed in Chapter VI, these questions have a direct bearing on the tax rates that would have to be levied and on the associated efficiency of the system.

Physical Assets. A basic part of a cash-flow tax is the immediate expensing of new capital investment. This leaves open the treatment of existing capital assets. Several alternative transition rules might be applied to existing assets, differing primarily in the level of taxation they would impose: the income from existing assets could be completely exempted, or it could be taxed in varying degree.[13] The overall tax rates imposed by the system (and therefore its efficiency) would depend on the extent to which income from existing wealth was taxed.

One transition rule would allow firms to deduct immediately their remaining tax basis in their assets. (The remaining basis is the original cost of an asset, less its accumulated depreciation deductions.) Taxpayers would be allowed to deduct only their remaining basis, and not the full market value of assets, because they would have already been allowed deductions under the income tax for depreciation. This would mean that unrealized and untaxed gains (under the income tax) on the holding of assets would be taxed under the consumption tax. If the current basis exactly equalled the current market value of the asset upon imposition of the consumption tax, the asset would be treated in exactly the same way as newly acquired capital.

This type of rule has one basic disadvantage: the federal government would suffer a large initial revenue loss. One way to avoid concentrating the revenue loss in the initial years is to allow firms to maintain their existing basis but to carry it over with interest. The deduction for basis would then be allowed when an asset was sold or otherwise disposed of. While this would ameliorate the large up-front cost of the deduction, it would not reduce its present value. Because of this, the revenue loss from the deduction would have to be made up with higher consumption tax rates, all else being equal.

A more restrictive transition rule would allow a full deduction only for newly produced capital goods. Newly produced assets would be allowed the

13 Taxation of income from existing capital is not inconsistent with a consumption tax because consumption tax rules need only apply to new or increased savings and investment.

benefit of the full deduction in the first year. In this case, the transfer of an existing asset (with a zero basis) would result in no net tax effect: the full proceeds from the sale would count as cash flow and the acquisition cost would count as an equivalent deduction.

Old assets that had not been fully depreciated would still be allowed deductions under the current depreciation rules until such time as they were fully depreciated. If sold, the existing basis (and deductions) would be carried over to the new owner; the gain on the sale (difference between sale price and current basis) would be taxed in full to the seller; and the buyer would be allowed only a first-year deduction equal to the cost of the asset less its carryover basis. In this case, there would be no net tax effect from a sale. The difference between this rule and the previous one is that revenue loss would be significantly less, allowing tax rates to be somewhat lower.

One final transition rule that might be considered is the "cold turkey" approach.[14] This would place all existing assets on a cash-flow basis immediately, allowing no deduction for their current basis. Only new acquisitions would be deductible, and the proceeds from sales would be taxed in full. Existing assets would not be allowed future deductions for depreciation or other cost recovery, nor would a deduction for basis be allowed at the time of sale. (The basis on all existing assets would be written down to zero upon imposition of the tax.) From the standpoint of the Treasury, this would be the least costly transition rule since existing assets would no longer receive the benefit of depreciation deductions under prior law. In effect, old capital would be subject to a "wealth" tax at the time of the phase-in to the new system. Such a rule, while improving the efficiency of the consumption tax, might be regarded as unfair by owners of capital that had been accumulated from after-tax dollars under the existing income tax.

Financial Assets. The transition rules for financial assets--such as cash, stocks, bonds, and receivables--could be similar to those for physical assets. The problems would be more difficult, however, because financial claims are more fungible than is real capital--that is, it is not easy to make distinctions between "old" and "new" money.

The fundamental approach to financial assets under a cash-flow system would be to allow a deduction for net increases in saving. During the transition, individual taxpayers would have an incentive to "hide" their

14 This is the rule advocated in the Hall-Rabushka plan.

financial assets before the tax took effect and to take advantage of the deduction afterward. That is, they would try to deduct not only increases in saving, but some portion of savings accumulated before imposition of the tax. This might create serious problems in financial markets if taxpayers withdrew cash from their bank accounts and sold stocks and bonds in order to "cash out" before the transition date, so as to "cash in" after that date. The problem of hiding existing financial assets is of less concern in the case of corporations, since they are required to file information on their assets and liabilities each year with their income tax returns.

Hiding of assets could be avoided by allowing taxpayers to deduct the "basis" in financial assets in the year of the tax change, just as for physical assets. For cash in savings or checking accounts, the basis would be the amount in the account as of the transition date. For stocks and bonds, the basis would be the historical acquisition price. This could be justified on the ground that taxpayers should be allowed a deduction for their basis because that would already have been subject to income taxation in the past and should not be taxed again when consumed. This might be especially important to elderly persons. The definition of basis would include only amounts that had been previously subject to tax. For example, it would not include unrealized gains on stocks or bonds or cash held in tax-exempt accounts such as IRAs or Keoghs. Under current law, these forms of savings are already treated according to cash-flow rules; their treatment would not be changed by a cash-flow tax.

The deduction for basis in the first year could reduce government revenues substantially because of the large amounts of savings held by taxpayers. This first-year revenue loss, could be minimized by spreading the basis deduction over time and indexing it by the interest rate so that the deduction retained its real value, although this would complicate administration and compliance.[15] (It would not, however, reduce the present value of the revenue loss.)

Like the deduction of basis for physical assets, the deduction of basis for financial assets would reduce the potential revenue from the consumption tax. An alternative would be to apply the "cold turkey" approach to existing financial assets: to allow no deduction for basis, and to tax existing

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15 For example, if a taxpayer held a bond with a cost basis of $1,000, this amount could be allowed as a deduction immediately or when the bond was redeemed, but increased by an interest factor. The interest factor would be such that bondholders would be indifferent between taking the deduction now or in the future.

asset accounts fully when withdrawn for consumption. This would impose a large tax on already existing wealth, but it would allow much lower rates thereafter, thus improving the efficiency of the tax. Existing wealth-holders would view the "double tax" as unfair, and it would be difficult to prevent investors from rearranging their portfolios prior to imposition of the tax.

Liabilities. Under a cash-flow tax, additional borrowing would be taxed but amounts used to repay principal or interest would be deductible. This raises an issue as to the treatment of already existing debt. One solution would be to require that a taxpayer's already accumulated debt be taxed as cash flow in the first year and to allow future principal and interest payments to be deducted. This would be the complement of a rule allowing financial assets to be written down to zero. The basis in existing debt would count as taxable cash flow, and the basis in existing saving would be deductible; thus, net wealth would be deductible. Under such a rule, however, taxpayers might have an incentive not to report their debts. This could be minimized by denying interest (and principal repayments) deductions on any loan not reported as cash flow in the initial year. Because of the large amount of outstanding debt, the losses to the Treasury from allowing an initial deduction for basis for assets would be offset in part by revenue gains from including existing debt.

For taxpayers who are currently large net debtors, the immediate inclusion of debt as taxable cash flow could mean a substantial burden in the short run. One way of addressing this concern would be to allow them the option of excluding existing debt from their tax base and forgoing future principal and interest deductions. In order to ease administration and compliance problems, taxpayers would be required to apply this election to all their debts--both existing and new liabilities. In future years, they might be allowed to switch this election, but in so doing they would be required to include their outstanding debt (at that time) as cash flow.

The inclusion of net debt as cash flow as of the transition date (or the denial of interest deductions) might at first appear to hurt companies with substantial borrowing, but there would be offsetting factors. To the extent that the borrowing had been used to finance financial assets (stocks, bonds, cash), there would be an immediate offset from the deduction of basis for those assets in the first or subsequent years. If borrowing had been used to purchase physical capital, the basis in these assets might also be deducted in the first year. In this way, the net tax effect on highly leveraged companies would likely be substantially reduced. In fact, the net result of including outstanding debt as cash flow, and allowing a deduction for the basis in assets, would be to allow an overall net deduction equal to the tax book value of firm net worth (assets minus liabilities) in the first year.

As with assets, the "cold turkey" approach could also be applied to liabilities. This approach would not count existing debt as cash flow, but would allow future deductions for principal and interest payments. Unlike the cold turkey approach to assets, which would essentially impose a double tax on existing asset holdings, that approach to liabilities would allow borrowers additional deductions for principal repayments without having to include the loan amount in cash flow. This approach would be quite favorable to existing borrowers. Instead of allowing a deduction for book net worth (as under the previous transition rules), the cold turkey rules would impose an extra tax on net worth (and a negative tax on net debt), thereby reducing potential consumption tax rates and increasing efficiency. Again, these benefits would have to be balanced against possible taxpayer inequities and higher enforcement costs.

# APPENDIXES

TABLE A-1. FEDERAL CORPORATION INCOME TAX EXEMPTIONS AND RATES, 1909-1985

| Year | Exemption and Brackets | Rate (percent) |
|---|---|---|
| 1909-1913 | $5,000 exemption | 1 |
| 1913-1915 | None after March 1, 1913 | 1 |
| 1916 | None | 2 |
| 1917 | None | 6 |
| 1918 | $2,000 exemption | 12 |
| 1919-1921 | $2,000 exemption | 10 |
| 1922-1924 | $2,000 exemption | 12.5 |
| 1925 | $2,000 exemption | 13 |
| 1926-1927 | $2,000 exemption | 13.5 |
| 1928 | $3,000 exemption | 12 |
| 1929 | $3,000 exemption | 11 |
| 1930-1931 | $3,000 exemption | 12 |
| 1932-1935 | None | 13.75 |
| 1936-1937 | Range of graduated normal tax | |
| | First $2,000 | 8 |
| | Over $40,000 | 15 |
| | Range of graduated surtax on undistributed profits | 7-27 |
| 1938-1939 | First $25,000 | 12.5-16 |
| | Over $25,000 | 19[a] |
| 1940 | First $25,000 | 14.85-18.7 |
| | $25,000 to $31,964.30 | 38.3 |
| | $31,964.30 to $38,565.89 | 36.9 |
| | Over $38,565.89 | 24 |
| 1941 | First $25,000 | 21-25 |
| | $25,000 to $38,461.54 | 44 |
| | Over $38,461.54 | 31 |

(Continued)

TABLE A-1. (Continued)

| Year | Exemption and Brackets | Rate (percent) |
|---|---|---|
| 1942-1945 | First $25,000 | 25-29 |
| | $25,000 to $50,000 | 53 |
| | Over $50,000 | 40 |
| 1946-1949 | First $25,000 | 21-25 |
| | $25,000 to $50,000 | 53 |
| | Over $50,000 | 38 |
| 1950 | First $25,000 | 23 |
| | Over $25,000 | 42 |
| 1951 | First $25,000 | 28.75 |
| | Over $25,000 | 50.75 |
| 1952-1963 | First $25,000 | 30 |
| | Over $25,000 | 52 |
| 1964 | First $25,000 | 22 |
| | Over $25,000 | 50 |
| 1965-1967 | First $25,000 | 22 |
| | Over $25,000 | 48 |
| 1968-1969[b] | First $25,000 | 24.2 |
| | Over $25,000 | 52.8 |
| 1970[b] | First $25,000 | 22.55 |
| | Over $25,000 | 49.2 |
| 1971-1974 | First $25,000 | 22 |
| | Over $25,000 | 48 |
| 1975-1978 | First $25,000 | 20 |
| | Next $25,000 | 22 |
| | Over $50,000 | 48 |

(Continued)

TABLE A-1. (Continued)

| Year | Exemption and Brackets | Rate (percent) |
|---|---|---|
| 1979-1981 | First $25,000 | 17 |
| | Next $25,000 | 20 |
| | Next $25,000 | 30 |
| | Next $25,000 | 40 |
| | Over $100,000 | 46 |
| 1982 | First $25,000 | 16 |
| | Next $25,000 | 19 |
| | Next $25,000 | 30 |
| | Next $25,000 | 40 |
| | Over $100,000 | 46 |
| 1983-Present | First $25,000 | 15 |
| | Next $25,000 | 18 |
| | Next $25,000 | 30 |
| | Next $25,000 | 40 |
| | Over $100,000 | 46 |

SOURCE: Joseph A. Pechman, *Federal Tax Policy*, 4th ed. (Washington, D.C.: Brookings Institution, 1983), Table A-6.

a. Less adjustments: 14.025 percent of dividends received and 2.5 percent of dividends paid.

b. Includes surcharge of 10 percent in 1968 and 1969 and 2.5 percent in 1970.

APPENDIX B

# THE EFFECT OF DEPRECIATION RULES ON ASSET TAX RATES

The corporate income tax has frequently been used as a way of achieving national economic policy goals. In order to provide incentives for businesses to increase their capital spending, the Congress has adjusted depreciation allowances with the aim of encouraging long-term capital formation and economic stability. This appendix explains how tax rules regarding depreciation allowances affect corporate tax rates.

The corporate income tax is a tax on the "income" earned by a corporation as defined by the Congress and implemented by the Internal Revenue Service (IRS). But the taxable income of a corporation as recognized under the IRS code need not be the same as its "economic income." The latter may be defined as a corporation's gross revenues minus its operating costs, such as payroll and supplies, as well as deductions for the decline in the value of the firm's assets due to exhaustion, wear and tear, or obsolescence. This decline in value of a firm's assets is referred to as economic depreciation and differs from tax depreciation in that it reflects the actual loss in value that an asset experiences, rather than an accounting artifact.

Technically, economic depreciation is the difference between the present value of an asset's output at the beginning of a period and its present value at the end of the period. Consider, for example, a machine that produces automobile tires at a rate of 100 per year. Assume that the machine wears down so that increased operation costs reduce the profit per tire by 10 percent each year, and that by the eleventh year the machine is obsolete and has no scrap value. Initially, assume that the profit per tire is $30 and that there is no inflation. Also assume that the interest rate used to discount future cash flows is 4 percent.

Table B-1 presents the calculation of economic depreciation for the tire machine. The first three columns present the output and profit flows for the machine in each year. The fourth column shows the current market value, equal to the present value of revenue--which is the sum of future net revenue discounted by 4 percent for each year (revenues are assumed to be received at the end of each year). Thus, at the beginning of the first year,

TABLE B-1. CALCULATION OF ECONOMIC DEPRECIATION (In dollars)

| Year | Tire Output (tires/ year) | Profit per Tire[a] | Net Revenue | Current Market Value of Machine[b] | Economic Depreciation[c] |
|---|---|---|---|---|---|
| 1 | 100 | 30 | 3,000 | 16,381 | 2,345 |
| 2 | 100 | 27 | 2,700 | 14,036 | 2,139 |
| 3 | 100 | 24 | 2,430 | 11,898 | 1,954 |
| 4 | 100 | 22 | 2,187 | 9,944 | 1,789 |
| 5 | 100 | 20 | 1,968 | 8,154 | 1,642 |
| 6 | 100 | 18 | 1,771 | 6,511 | 1,510 |
| 7 | 100 | 16 | 1,594 | 5,001 | 1,394 |
| 8 | 100 | 14 | 1,435 | 3,607 | 1,291 |
| 9 | 100 | 13 | 1,291 | 2,316 | 1,199 |
| 10 | 100 | 12 | 1,162 | 1,118 | 1,118 |

a. Profit is sales revenue per tire less production costs.

b. Current market value is equal to the present value of future cash flows. The market value is stated as of the beginning of any given year. Revenues are assumed to be received in a lump sum at the end of a given year. The discount rate is 4 percent.

c. Economic depreciation is the difference between the market value of a machine at the beginning of a given year and at the beginning of the subsequent year.

the present value of the future profit generated by the machine is equal to $16,381. This is the machine's current market value and is equal to the amount that an investor would pay for the new machine in order to receive an annual real return of 4 percent. At the beginning of the second year, the machine's future output has a present value of $14,036. This is the amount that an investor would pay for a one-year-old machine in order to receive a 4 percent return. Thus, the decline in value between the first and second years is $2,345 ($16,381 less $14,036), the machine's economic depreciation. In the absence of inflation, the amount of economic depreciation is equal to the change in an asset's market value over time. During inflationary periods, an asset's change in market value is composed of a gain due to inflation and a loss due to economic depreciation. Economic depreciation for an asset N years old can be measured by the difference between its cur-

rent market value and its value at the start of the year, restated in terms of the current price level.

If used assets were commonly traded in markets, there would be little difficulty in calculating true economic depreciation. Many assets, however, are only rarely traded, and the government employs rule-of-thumb depreciation formulas for tax purposes. The depreciation allowance for tax purposes can be either greater or less than an asset's actual economic depreciation, depending on the relationship between the asset's "true life" and that allowed for taxation. Thus, by changing the rules governing tax depreciation, the Congress can raise or lower effective tax rates without changing the statutory rate applicable to corporate income. If the tax allowance exceeds economic depreciation for a given asset, its economic income will be understated for tax purposes; conversely, if the tax allowance is less than economic depreciation, an asset's income will be overstated. If income is understated, the effective tax rate will be less than the statutory tax rate, and vice versa. By altering the system of tax depreciation allowances, the Congress can reduce (or increase) the effective tax rates borne by various classes of assets.

## DEPRECIATION FORMULAS

Several different methods of determining tax depreciation have been sanctioned by the Congress over the past 30 years:

- The straight-line method. This formula allocates deductions in equal amounts over the life of a property. It is the predominant method of depreciation for financial (as opposed to tax) accounting purposes.

- The declining-balance formula. This method entitles taxpayers to a depreciation deduction equal to a uniform rate applied to the "book" or unrecovered basis of the asset. Since the depreciable basis is reduced by prior depreciation, the rate is applied to a continually declining base, resulting in declining deductions. When the declining-balance deduction falls below depreciation based on straight-line deductions, firms are allowed to switch to the straight-line method. The rate used to compute the declining-balance deduction is usually stated as a percentage of the straight-line rate. In the past, rates such as 200 percent, 175 percent, and 150 percent of the comparable straight-line rate have been allowed for tax purposes. The "double-declining-balance" method (200 percent of the straight-line rate) is the most accelerated of the

declining-balance rates and allows firms to write off approximately 40 percent of the cost of an asset in the first quarter of its service life and two-thirds of the cost in the first half of its life.

- The sum-of-the-years' digits (SYD) schedule. This method permits the write-off of a fraction of the asset's cost equal to the number of years remaining in the asset's tax life divided by the sum of the years in its statutory life. For example, the sum of the years for a property with a life of five years would be 15 (5+4+3+2+1). In the first year, the depreciation fraction would be 5/15; in the second year it would be 4/15, and so on. SYD is less generous than double-declining balance in the first two years of an asset's life, but more generous in subsequent years.

- The ACRS Schedule. The depreciation system adopted as part of ERTA--referred to as ACRS--specifies the exact percentage allowances allowed different assets in each year. The schedules approximate 150 percent declining balance, switching to straight-line at the optimal time.

Traditionally, tax depreciation formulas have used the historical cost of an asset as the depreciable base and have allocated this amount over the asset's life. Thus, the sum of depreciation allowances has always equaled the original cost of the asset in question. The differences beween the formulas are in the timing and size of deductions over the asset's tax life. Table B-2 compares the allowances that would be accorded the tire-making machine under four of the basic techniques for calculating tax depreciation. For reference, the amount of actual economic depreciation the machine experiences is also shown. The more accelerated methods clearly provide a much faster write-off than would be permitted under straight-line depreciation. The value of this acceleration, however, depends critically on how firms discount future deductions relative to the present.

One method of comparing tax depreciation allowances is in terms of their present value. In the tire machine example in Table B-2, the present value of economic depreciation deductions equals $13,642. This is more than the present value of both the straight-line depreciation and the 150 percent declining-balance (switching to straight-line) methods. The straight-line method yields a stream of deductions with a present value of $13,286, or $356 less than the present value of economic depreciation; in the case of 150 percent declining balance, the difference is $94. Conversely, the three other methods of tax depreciation--double declining balance (switching to straight-line), sum of the years' digits, and ACRS--all have present values greater than that of economic depreciation. The ACRS

TABLE B-2. ECONOMIC DEPRECIATION COMPARED WITH FIVE METHODS OF TAX DEPRECIATION (In dollars)

| | Economic Depreciation | | Straight-Line | | 150 Percent Declining Balance | | 200 Percent Declining Balance | | Sum of the Years' Digits | | ACRS[a] Five-Year | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Annual Allowance | Accumulated Depreciation | Annual Allowance | Accumulated Depreciation | Annual Allowance | Accumulated Depreciation | Annual Allowance | Accumulated Depreciation | Annual Allowance | Accumulated Depreciation | Annual Allowance | Accumulated Depreciation |
| 1 | 2,345 | 2,345 | 1,638 | 1,638 | 2,457 | 2,457 | 3,276 | 3,276 | 2,978 | 2,978 | 2,457 | 2,457 |
| 2 | 2,139 | 4,483 | 1,638 | 3,276 | 2,089 | 4,546 | 2,621 | 5,897 | 2,681 | 5,659 | 3,604 | 6,061 |
| 3 | 1,954 | 6,437 | 1,638 | 4,914 | 1,775 | 6,321 | 2,097 | 7,994 | 2,383 | 8,042 | 3,440 | 9,501 |
| 4 | 1,789 | 8,227 | 1,638 | 6,552 | 1,509 | 7,830 | 1,677 | 9,671 | 2,085 | 10,126 | 3,440 | 12,941 |
| 5 | 1,642 | 9,869 | 1,638 | 8,191 | 1,425 | 9,255 | 1,342 | 11,013 | 1,787 | 11,913 | 3,440 | 16,381 |
| 6 | 1,511 | 11,380 | 1,638 | 9,829 | 1,425 | 10,680 | 1,074 | 12,087 | 1,489 | 13,403 | 0 | 16,381 |
| 7 | 1,394 | 12,774 | 1,638 | 11,467 | 1,425 | 12,106 | 1,074 | 13,160 | 1,191 | 14,594 | 0 | 16,381 |
| 8 | 1,291 | 14,065 | 1,638 | 13,105 | 1,425 | 13,531 | 1,074 | 14,234 | 894 | 15,487 | 0 | 16,381 |
| 9 | 1,199 | 15,263 | 1,638 | 14,743 | 1,425 | 14,956 | 1,074 | 15,307 | 596 | 16,083 | 0 | 16,381 |
| 10 | 1,118 | 16,381 | 1,638 | 16,381 | 1,425 | 16,381 | 1,074 | 16,381 | 298 | 16,381 | 0 | 16,381 |
| Present Value | 13,642 | | 13,286 | | 13,548 | | 13,902 | | 14,066 | | 14,521 | |

NOTE: Present value is calculated using a 4 percent discount rate. The original cost of the asset is $16,381.

a. Does not include a basis adjustment.

method yields the highest present value ($14,521), which is $879 greater than economic depreciation. Clearly, how any method of tax depreciation compares with economic depreciation will depend on the rate of economic depreciation. Under some conditions, all of the systems presented here could have present values less than that of economic depreciation. Because of the time value of money, however, depreciation allowances are more heavily valued the sooner they can be deducted, and therefore the more accelerated methods of tax depreciation will always have a greater present value for an asset of a given tax life.

The effect that the method of depreciation can have on the stream of tax payments over time is shown in Table B-3. Revenue from the tire-making machine is the same as before. The statutory tax rate is assumed to be 46 percent. Economic income is measured by the difference between revenues and economic depreciation, as calculated in Table B-1. This is the net income of the machine and yields a rate of return equal to 4 percent of the market value of the property in each year. The effective tax rate for each year is measured by the ratio of tax payments to economic income. The total effective tax rate is measured by the ratio of the present value of tax payments to the present value of economic income.

In the case where the tax deductions equal economic depreciation, taxable income equals economic income. Consequently, the effective tax rate for each year and the total tax rate equal the statutory rate of 46 percent. This is a general result and does not depend on the specific numbers chosen in this example. A tax system that allows depreciation in the amount equal to the economic decline of the property will always yield an effective tax rate equal to the statutory tax rate, all else being the same.

When depreciation allowances accrue at a slower rate than economic depreciation, as in the straight-line case, the total effective tax rate will be greater than the statutory rate. In the example in Table B-3, the total effective tax rate for straight-line depreciation is 52 percent, or 6 percentage points higher than the statutory rate. Notice that the annual effective tax rate varies widely from a low of -490 percent to a high of 96 percent. The negative rate arises because in the later years of the asset's life the depreciation deductions exceed revenues, and the firm is presumably able to offset other income with the excess deductions. The reason why the total effective rate is greater than 46 percent is that the relatively high effective rates in the early years of the asset more than offset the lower rates in the later years, taking account of the time value of money.

In the double-declining-balance case, the total effective tax rate is lower than the statutory rate because allowances accrue at a faster rate

TABLE B-3. EFFECTIVE TAX RATES BASED ON ECONOMIC, STRAIGHT-LINE, AND DOUBLE-DECLINING-BALANCE METHODS OF DEPRECIATION (In dollars)

| Year | Net Revenue | Economic Income | Economic Depreciation | | Straight-Line Depreciation | | Double-Declining-Balance | |
|---|---|---|---|---|---|---|---|---|
| | | | Tax Payments | Tax Rate[a] (percent) | Tax Payments | Tax Rate[a] (percent) | Tax Payments | Tax Rate[a] (percent) |
| 1 | 3,000 | 655 | 301 | 46 | 626 | 96 | -127 | -19 |
| 2 | 2,700 | 561 | 258 | 46 | 488 | 87 | 36 | 6 |
| 3 | 2,430 | 476 | 219 | 46 | 364 | 77 | 153 | 32 |
| 4 | 2,187 | 398 | 183 | 46 | 252 | 63 | 234 | 59 |
| 5 | 1,968 | 326 | 150 | 46 | 152 | 47 | 288 | 88 |
| 6 | 1,771 | 260 | 120 | 46 | 61 | 24 | 321 | 123 |
| 7 | 1,594 | 200 | 92 | 46 | -20 | -10 | 240 | 120 |
| 8 | 1,435 | 144 | 66 | 46 | -93 | -65 | 166 | 115 |
| 9 | 1,291 | 93 | 43 | 46 | -159 | -172 | 100 | 108 |
| 10 | 1,162 | 45 | 21 | 46 | -219 | -490 | 41 | 91 |
| Total | 19,540 | 3,159 | 1,453 | | 1,453 | | 1,453 | |
| Present Value | 16,381 | 2,739 | 1,260 | 46 | 1,423 | 52 | 1,140 | 42 |

NOTE: Present value is calculated using a 4 percent discount rate.

a. The effective tax rate is equal to the ratio of tax payments to economic income.

than those based on economic depreciation. In this example, the total rate is 42 percent, and varies from -19 percent in the first year to 91 percent in the last year. In contrast to straight-line depreciation, the relatively low tax rates in the early years more than offset the sharply rising tax rates in later periods. Although declining-balance methods of depreciation will always result in effective tax rates that are less than those based on straight-line depreciation, they do not necessarily result in rates below the statutory rate. That depends on whether they yield tax allowances that accrue more or less rapidly than the true economic decline of the property. Thus, declining-balance, SYD, or ACRS depreciation methods can yield effective rates higher than the statutory rate if economic depreciation accrues at a faster rate.

By allowing accelerated methods of depreciation, the Congress can effectively reduce the effective tax burden on corporate capital. In the example shown in Table B-3, a switch from straight-line depreciation to double-declining-balance would reduce the effective tax rate by 10 percentage points (from 52 percent to 42 percent). Effective tax rates can also be altered by changing the life over which a method of depreciation is applied. Tax rates can be raised by lengthening the period over which allowances are taken and lowered by shortening the period. The effect of changing tax lives is shown in Table B-4, where three tax lives (4, 7, and 10 years) and two methods of depreciation (straight-line and double-declining-balance) are used to calculate tax payments and rates.

Straight-line depreciation based on the 10-year life yields a tax rate above the statutory rate of 46 percent. But by reducing the life over which deductions are taken to four years, for example, the tax rate can be lowered by 27 percentage points (52 less 25). Thus, a reduction in tax lives can be used to lower tax rates even if accelerated methods of depreciation are not utilized. The use of accelerated methods would reinforce the tax rate reductions resulting from lower tax lives. The use of double-declining-balance over a four-year life would reduce the rate to 19 percent by providing deductions in excess of revenues in the early years. In contrast, increasing tax lives would have an opposite effect and would raise tax rates. Both the method of depreciation and the time span over which deductions are taken can have significant effects on the rate at which capital investments are taxed.

TABLE B-4. TAX PAYMENTS AND RATES BASED ON STRAIGHT-LINE AND DOUBLE-DECLINING-BALANCE DEPRECIATION FOR THREE DIFFERENT TAX LIVES (In dollars)

| Year | Net Revenue | Economic Income | Tax Payments Under Straight-Line Depreciation, Tax Life (years) Four | Seven | Ten | Tax Payments Under Double-Declining-Balance, Tax Life (years) Four | Seven | Ten |
|---|---|---|---|---|---|---|---|---|
| 1 | 3,000 | 655 | -504 | 304 | 626 | -2,388 | -773 | -127 |
| 2 | 2,700 | 561 | -642 | 166 | 488 | -642 | -296 | 36 |
| 3 | 2,430 | 476 | -766 | 41 | 364 | 176 | 19 | 153 |
| 4 | 2,187 | 398 | -878 | -70 | 252 | 64 | 221 | 234 |
| 5 | 1,968 | 326 | 905 | -171 | 152 | 905 | 252 | 288 |
| 6 | 1,771 | 260 | 815 | -262 | 61 | 815 | 161 | 321 |
| 7 | 1,594 | 200 | 733 | -343 | -20 | 733 | 80 | 240 |
| 8 | 1,435 | 144 | 660 | 660 | -93 | 660 | 660 | 166 |
| 9 | 1,291 | 93 | 594 | 594 | -159 | 594 | 594 | 100 |
| 10 | 1,162 | 45 | 535 | 535 | -219 | 535 | 535 | 41 |
| Total | 19,540 | 3,159 | 1,453 | 1,453 | 1,453 | 1,453 | 1,453 | 1,453 |
| Present Value | 16,381 | 2,739 | 697 | 1,074 | 1,423 | 528 | 845 | 1,140 |
| Tax Rate[a] | | | 25 | 39 | 52 | 19 | 31 | 42 |

NOTE: The discount rate is 4 percent.

a. Tax rate is the present value of tax payments divided by the present value of economic income.

## THE IMPACT OF INFLATION ON CAPITAL RECOVERY ALLOWANCES

Inflation seriously affects tax rates on capital investment by reducing the present value of depreciation allowances. Because tax allowances are based on the historical cost of a property, they are significantly eroded in times of inflation. In general, inflation will lead to an understatement of depreciation allowances and consequently to the overstatement of taxable income. Higher rates of inflation will lead to even higher taxable incomes and effective tax rates.

The impact that a 5 percent annual inflation rate can have on effective tax rates is shown in Table B-5. The 5 percent inflation rate is assumed

TABLE B-5. EFFECT OF 5 PERCENT INFLATION ON TAX PAYMENTS UNDER ALTERNATIVE DEPRECIATION SYSTEMS
(In dollars)

| Year | Net Revenue | Nominal Economic Income | Tax Payments Under: Unindexed Economic Depreciation | Straight-Line Depreciation | Double-Declining-Balance Depreciation | Indexed Economic Depreciation |
|---|---|---|---|---|---|---|
| 1 | 3,150 | 688 | 370 | 695 | -58 | 316 |
| 2 | 2,977 | 619 | 386 | 616 | 164 | 285 |
| 3 | 2,813 | 551 | 395 | 540 | 329 | 253 |
| 4 | 2,658 | 483 | 400 | 469 | 451 | 222 |
| 5 | 2,512 | 416 | 400 | 402 | 538 | 191 |
| 6 | 2,374 | 349 | 397 | 338 | 598 | 161 |
| 7 | 2,243 | 281 | 391 | 278 | 538 | 129 |
| 8 | 2,120 | 213 | 382 | 222 | 481 | 98 |
| 9 | 2,003 | 144 | 370 | 168 | 428 | 66 |
| 10 | 1,893 | 73 | 357 | 117 | 377 | 33 |
| Total | 24,744 | 3,818 | 3,847 | 3,847 | 3,847 | 1,756 |
| Present Value | 16,381 | 2,739 | 2,454 | 2,742 | 2,233 | 1,260 |
| Tax Rate[a] | --- | --- | 90 | 100 | 82 | 46 |

NOTE: Present-value calculations use a discount rate of 9.2 percent.

a. Tax rate is the present value of tax payments divided by the present value of economic income.

to increase the revenues of the tire-making machine by an equal percentage. A 5 percent inflation adjustment is made to the interest rate so that present values are determined by annually discounting future values by 9.2 percent. Based on these assumptions, the real economic income of the machine does not change because of inflation.

Real tax payments are significantly affected by inflation for all three depreciation systems based on historical cost. This is because revenues are growing at 5 percent due to inflation while depreciation allowances remain static. Thus, taxable income increases by more than 5 percent, increasing taxes by more than 5 percent. When economic depreciation (unindexed) is used to compute tax liabilities, the present value of tax payments is 95 percent higher than in the case with no inflation (see Table B-3). Thus, the 5 percent inflation rate will almost double the effective tax rate from 46 percent to 90 percent. Persistent levels of moderate inflation can significantly increase capital tax burdens because the effect is compounded over time.

The straight-line and declining-balance methods are similarly affected by inflation. The effective tax rate based on straight-line allowances rises by 48 points, from 52 percent to 100 percent; the declining-balance tax rate increases by 40 points, from 42 percent to 82 percent. Note that the declining-balance method yields an effective tax rate below the statutory rate of 46 percent in the case of no inflation, and well above the statutory rate in the presence of inflation. Had the assumed rate of inflation been higher, the increases in tax rates would have been even greater.

One method of neutralizing the effect of inflation and equalizing effective and statutory tax rates is to index economic depreciation allowances for inflation. As shown in Table B-3, tax allowances equal to economic depreciation will yield an effective tax rate equal to 46 percent. When economic depreciation is adjusted for inflation, the effect of inflation on tax rates is neutralized and the statutory rate is the effective tax rate. Indexing would yield the same effective tax rate regardless of whether the inflation rate rose or fell over the life of the asset.

Alternatively, shortening tax lives and allowing accelerated depreciation methods can offset the undesirable effects of inflation. By relying on these approaches, the Congress can effectively eliminate the increases in tax burdens due to inflation. Because inflation is variable, however, and allowances are based on historical cost, the level of capital taxation will remain susceptible to changes in the inflation rate unless allowances are indexed. Without indexing, inflation could cause effective tax rates to be higher or lower than the Congress intended.